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EDUCATION

Devoted to the Science, Art, Philosophy and Literature of Education

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Some Needs of Our High Schools*

BY PROFESSOR STEPHEN S. COLVIN, BROWN UNIVERSITY, PROVIDENCE, R. I.

EDUCATIONAL advance, like all other forms of social progress, is marked from decade to decade by certain attitudes and emphases. Just at present the problems centering around secondary education are attracting a large share of attention. We are inquiring more and more into the meaning of secondary education, we are discussing the reorganization of the high school on a basis more suited to the needs of the individual and of society; we are scrutinizing as never before curricula and programs of study; we are debating methods; we are demanding adequate preparation for our secondary teachers.

Many of these questions are so large and comprehensive that they can be solved only by collective thinking and collective effort involving many workers in many localities. There are, however, important problems in secondary education, definite needs of our high schools, that are less general in their nature, and can best be worked out in smaller groups, and in restricted localities. Indeed, a large proportion of our progress in secondary education can best be achieved by attacking specific problems in specific situations.

In Rhode Island we are advantageously situated for approaching the questions of secondary education in an intensive manner and in a restricted field. In the first place the area of the State is so small that nearly all of our public and private secondary

* This, and all other articles in this number of "Education", were prepared for and given as addresses before the Brown University Teachers Association at the fourteenth annual meeting of the Association, at Providence, R. I., March 31st and April 1st, 1916.

schools are situated within a short distance from Providence as a centre. Again, the number of such schools is relatively few, and further they conform to well defined types. These schools are for the most part urban in character; large or medium sized schools predominate; the problem of the rural high school hardly exists, and courses of study are only moderately diversified. With the exception of the commercial courses that have been organized chiefly on a vocational basis, the curricula of our high schools are either academic and college-preparatory, or pre-vocational in their type. Hence the number of problems common to the various schools is large. These conditions make it possible for us here in Rhode Island and in the immediately adjacent parts of Massachusetts to turn our attention to very definite needs of our secondary schools, and to an intensive study of these needs.

The question of who can best determine these needs is important. In the nature of the case some of the problems that concern secondary education in this locality can be advantageously studied primarily only by central administrative and supervising authorities. The questions of the location, construction and equipment of the school plant, the problem of training secondary teachers, and of fitting curricula to community needs are examples. However, the vital problems of secondary education are not restricted to questions of the above type, important as they are. Ultimately all progress in education is measured by progress in the classroom. The teaching problem is the final problem, and all educational reform must aim in the last analysis at securing better teaching. The immediate question of the improvement of secondary teaching should be undertaken in a large measure by the teachers themselves. It cannot satisfactorily be given over exclusively or primarily to administrative and supervising officers. In these matters they may advise, assist, and co-operate, but they should be loth to dictate. The secondary teacher who is worthy of the name should have a more thorough acquaintance with the subject matter in his department of instruction than can the supervisor who views secondary education as a whole and in the large. The thoughtful and progressive secondary teacher should likewise have a more intimate knowledge of his pupils and their individual and collective needs than can the officers above him. Hence from the teacher in the field must

come in a great measure the solution of the problems of instruction.

The thought that I wish to impress upon you in this connection is that it is to the secondary teachers of this State, working in co-operation through various groups organized in reference to the subject matter of the curriculum, that we must look to undertake the definite work of defining aims, determining methods, and measuring the results of secondary teaching, as far as our local problems are concerned. There should be a group of teachers brought together in a working association for every main subject in the high school course in this state. Each of these groups through representative committees should first of all attempt to define the aims of their particular departments of instruction. They should ask and seek definitely to answer such questions as these:—

"What should be the chief purpose in this course in European history?" "Should it be to impress upon the minds of the pupils a certain definite body of fact?" "Should it be to train them in the ability to read and comprehend historical material?" "Should it aim to develop the historical judgment; should it seek to impart culture and appreciation?" "Should it attempt first of all to teach moral and civic lessons through a knowledge of the past?"

The teacher of modern languages may also put similar questions in regard to the main purposes of his subject of instruction. He may ask:—"Should the purpose of this course be primarily to secure for the pupil facility in reading, in speaking, in writing?" Should it be to gain skill and accuracy in translation?" "Should it be to develop a linguistic sense?" "Should it be to inculcate literary appreciation?"

The teacher of English will find himself asking questions, of the same import, if he strives adequately to serve the needs of the pupils that come under his instruction; the teacher of science will likewise inquire as to the purposes he should set before himself in his instruction. "Shall he attempt to acquaint his classes with a knowledge of their physical environment, give them a comprehension of the scientific principles in the world about them, and interest them in the physical, chemical and biological phenomena of every day life?" "Shall he attempt to train them in laboratory

technique?" "Shall he seek to acquaint them with the logical development of the subject matter of the science?" "Shall he introduce them to the scientific method, and strive to awaken in them a scientific attitude?"

These aims are a few examples of what the inquiring and progressive teacher of any subject in the secondary curriculum must from time to time ask himself. They are questions that are pressing for answer, and they should be answered not by the individual teacher working in isolation, not by the principal, superintendent, or supervisor, but by the whole body of teachers through co-operative research and discussion.

If the aims of instruction in the various subjects of the secondary curriculum can thus be determined (and they must be determined if we are to secure thoroughly efficient teaching), the second important general question that relates to instruction will naturally suggest itself,—namely, "What are the minimal essentials of knowledge, skill, insight, and comprehension that are necessary to achieve these aims?" It is possible in most subjects of instruction to determine a considerable number of these essentials. For example, it ought to be entirely possible for a group of English teachers to decide on a list of words that all high school pupils should be able to spell at different stages of their course, the number of principles in grammar and composition that they should be able to state and apply, the facility that they should secure in punctuation, paragraph structure, in letter-writing, and so on. It ought to be possible to decide further as to the number and kinds of books they should be expected to read and comprehend, the facts in literary history they should know, and the ability they should acquire in mastering the thought of the printed page. The teachers of foreign language among other matters could profitably determine the amount of skill in sight translation that could reasonably be expected of a pupil at any given point in his study, the number of books that he should read and translate, and the extent of grammatical knowledge that should be expected. The teachers of algebra should set up standards of proficiency in fundamental operations, and in ability to solve problems. The teachers of geometry should definitely formulate statements as to the number of text book propositions that the pupil should know, the ability that he should reach in the

solution of originals, and the power that he should develop to perceive geometrical relationships and construct geometrical figures. The teachers of history should determine the body of facts to be studied in connection with each important period, and the ability that is to be expected of every pupil in the interpretation of these facts. The science teachers should agree as to the number of formulae to be learned, the number of principles to be mastered, the number of laboratory experiments to be performed, the number of scientific facts to be presented, and the like. In the manual arts and commercial subjects the minimal essentials of skill have already been fixed to a considerable extent, but they can further be considered with the aim of clarification and improvement.

When the matter of minimal essentials has been determined, the next step is to work out adequate tests to measure the pupil's ability in regard to these essentials. Some standards of measurement have already been devised, but a large number are still to be determined. When once agreed upon they can be applied to all classes and all schools. Then the teacher will know definitely just where he stands in results accomplished in comparison with teachers of other classes and in other schools. I know of no knowledge more wholesome for the teacher, of none more beneficial to the school, of none more important to educational progress.

I have mentioned in as much detail as time will permit, some of the many things that the suggested groups of teachers may profitably consider. There are others that do not relate to aims, minimal essentials and tests of achievement, that are likewise important. These I can but briefly touch on in passing. Among these are various problems in regard to classroom method and technique that concern the very essence of teaching. They demand discussion, criticism, investigation, and constructive development such as only the teachers concerned can give. Then there are problems of text books, equipment and apparatus, sequence of courses, and many similar questions that offer large opportunities for careful consideration, with an aim at ultimate standardization.

It is my opinion that if the teachers of this state, working perhaps with their colleagues in nearby high schools and academies

of neighboring states, would organize themselves into such groups as have been suggested with a view of taking up definite problems relating to their special fields and with the aim through the efforts of committees and individual members of carrying out to a practical solution some of these problems, many of the most important needs of our high schools would be brought into the focus of clear consciousness with the result that these needs would be ultimately satisfied. If you study the program of this meeting you will see that a start has already been made in this direction. There is at present in existence an association of German teachers and a second of history teachers that occupy an important place in our deliberations. There are also provided at this meeting round-table conferences for teachers of mathematics, Romance languages, English, science, and commercial subjects. It is hoped that these conferences will result in the formation of permanent groups among the teachers there represented; it is hoped that these groups will constitute themselves into effective working bodies who will take up vital and practical problems relating to the teaching of the various subjects and investigate and deliberate concerning these problems over a series of years; it is hoped that other groups will later be organized until all the subjects of high school instruction are included; it is hoped that these teachers will meet from time to time, particularly in connection with this Association, with the view of developing a high school conference that will be of direct practical significance to all of the secondary teachers of this state.

Considering this proposal from the view-point of my office as State High School Inspector, I can think of nothing more important for the improvement of secondary education throughout the state. The inspector can do little more than to suggest and recommend. Educational progress can be achieved in a large measure only through the co-operative endeavor of the teachers themselves. This definite co-operative endeavor is a permanent need of our high schools today.

In conclusion, I wish to say that an organized movement on the part of the teachers of this State such as I have suggested will result not only in great direct benefit to the schools, but it will even in a greater degree benefit the teachers themselves individually and collectively. In the first place it will largely do

away with what at times impresses me as the pathetic isolation of the secondary teacher. The elementary teachers have a common background of similar professional training and diversified subject matter which the secondary teachers do not possess, and they have a professional spirit and a fund of common ideals due to this training. If the high school teachers could get out of their classrooms and survey their problems from the broad point of view engendered by coming in touch with other teachers in their own group, this would vitalize their teaching as little else could do. If it is true, as some investigators believe, that the secondary teacher reaches his highest efficiency after three or four years of experience, his further lack of progress is due to the fact that he has not kept his mind open and active, his attention alert, his interests keen. He needs to touch elbows with his fellows, he needs to sensitize the antennae of thought and feeling to their highest degree to be in sympathetic contact with the energies of power and inspiration that under proper conditions will radiate from other minds to his. By co-operative association with those of common interests, common problems, common purposes such a result may most readily be secured. It is a fundamental need of our high schools.

Dartmouth and the Schools

By Professor James L. McConaughy, Dartmouth College, Hanover, N. H.

THE "new Dartmouth admission plan" is not an admission plan at all. Dartmouth has made no change in her entrance requirements. We still insist on the same number of units, 14½, still demand English, mathematics and history of all candidates, four years' Latin of the B.A. candidate, four years of modern languages and sciences of the B.S. candidate. Nor has Dartmouth made any change in the method by which these requirements may be met; freshmen are admitted to Dartmouth as in the past, either by examinations or by presenting a certificate from the principal of an approved school. The innovation is in the method of selecting the schools that shall be upon our approved list. Dartmouth now does this herself; she has done away with the middleman; we are trying to carry out the sound business principle of uniting producer and consumer. We shall endeavor to get in personal touch with practically every school sending any large number of men to Dartmouth. We wish to know the principals of these schools, to find out what sort of work they are doing, what sort of students they are producing, and whether they fully recognize Dartmouth's standards and aims. We are seeking to promote more personal and less perfunctory relations with these schools. As far as possible each school will be visited by a representative of the Faculty. This visit will enable the school to discuss directly any questions connected with college preparation and admission; it will enable the college to secure a personal estimate, based upon actual inspection and discussion, of the ability of the school to prepare pupils for Dartmouth. The granting or reissuing of the certificate privilege is decided by the Committee after due consideration of: (1) the report of the visitor from the faculty; (2) the record of the graduates of the school who have entered Dartmouth, if any; (3) the standing of the school

in the rating of the State Department of Education and other certificating bodies; (4) the information contained in the application blank submitted by the principal of the school. The Committee endeavors to decide each application upon its merits; particular attention is paid to: (1) the quality of the instruction, as influenced by training of teachers, pupils per teacher, classes per teacher; (2) the equipment of the school, including laboratory and library facilities; (3) the course of study, indicated by length of school year, length of actual teaching period, number of recitations per week in each subject, provision for concentration on certain subjects, and opportunity for the study of electives.

Any new scheme, such as this, inevitably is misinterpreted. There are those who have implied that by this new method Dartmouth desired to increase its student body; it has even been suggested that the remarkable increase in the last two Freshman classes is to be explained on this basis. A brief investigation of statistics completely disproves this. Out of nine hundred and twenty-nine freshmen admitted in 1914 and 1915 only thirty-six would have been debarred if Dartmouth had remained upon the New England College Entrance Certificate Board, and five of these came from schools which, the following year, were on the Board's approved list. Nor is this scheme the handing over to the state departments of education the right to decide which schools shall admit to Dartmouth without examination; the Committee has had the advice and co-operation of such departments in New England, which seemed much interested in the plan, but Dartmouth will continue to determine which schools shall have the certificate right. Instead of increasing the student body by a lowered standard, this new plan attempts to raise the quality of students admitted, and prevent the admission of the boy who, because of lack of preparation or lack of interest in the things for which Dartmouth stands, will not make a good Dartmouth product.

Recent statistics show that about 13% of all the boys who are admitted to Dartmouth have to be dropped for scholarship difficulties. Our problem is to decrease this percentage; this can be done by hindering the admission to Dartmouth of the boy who is incompetent or not anxious for the Dartmouth type of education, and by demonstrating to principals the unfairness of all concerned

in certifying a boy as fitted for Dartmouth unless he has really superior ability. Insinuations were made recently in a prominent New England academy to the effect that although Dartmouth's standards were very rigid with the boy after he was admitted, our examinations were very easy to pass, that boys were admitted by examination who were incompetent. An investigation of this criticism gave some interesting information. Taking all the students in the present freshman class who entered by passing an entrance examination in a subject which was continued during the first semester of the freshman year, we find:

	Subjects Passed	College Failures in these subjects	Percentage of Failures
Dartmouth Examinations,	72	2	2.7
College Board Examinations,	90	5	5.5
Entrance Examinations of other Colleges	130	17	13.0

This seems to demonstrate clearly that Dartmouth examinations are hard enough to test a boy's ability to do college work.

Dartmouth withdrew from the New England College Entrance Certificate Board in May, 1914. During the year 1914-15 no important change was made in the method of dealing with approved schools. Last fall, however, the new method of coming in personal touch with our schools was fully launched. Printed matter and application blanks were sent to the eight hundred schools which have sent pupils to Dartmouth in recent years. By the end of this college year practically every school in New Hampshire and Vermont that has sent to Dartmouth three or more students since 1912 will have had a personal visit from some member of the Dartmouth Faculty. One of the most encouraging results of this new plan is the cordial response which we have had from the small New Hampshire high schools. Since withdrawing from the New England College Entrance Certificate Board Dartmouth has come in personal touch with thirteen New Hampshire schools, and four are now applying for the certificate right. None of these were sending boys to us when we were on the Board. Practically every New Hampshire high school that prepares students for college is now sending at least an occasional pupil to Dartmouth. Many schools in other states also have been visited, making a total of nearly one hundred. Twenty-seven of these visits were made by fourteen members of the faculty; this personal touch with secondary school problems and methods should

be of value to the faculty in helping us solve college problems and problems connected with bridging over the gap between school and college.

In carrying out this policy of co-operation, rather than criticism, the Committee on Admission has recommended to the trustees that individual scholarship honors for freshman year be announced with the name of the school that prepared the honor candidate. The trustees have also voted to award each year a plaque to the school sending three or more men to the freshman class, whose students make the highest standing in the first semester of freshman year. Of the fifty schools which sent three or more students to us this fall, the Central High School of Springfield, Mass., sent the students who attained the highest record; next on the list were Holten High School, Danvers, Mass., East High School, Cleveland, Ohio, Vermont Academy, Saxtons River, Vermont, Tilton Seminary, Tilton, New Hampshire.

In order to secure the advice and interest of the Dartmouth alumni who are engaged in teaching, the committee has held five informal dinners and conferences in various parts of New England and New York. A similar luncheon was held at the recent N. E. A. meeting at Detroit; over forty Dartmouth men engaged in educational work from Tacoma to Manchester considered questions relating to Dartmouth's co-operation with the schools of the country.

Whether Dartmouth's new method of getting in personal touch with the secondary schools is of more than local interest, the future alone can determine. The plan as outlined and as carried out this initial year, contains some features which are certainly worthy of consideration by other colleges. In the first place, this personal contact gives us an opportunity to insist on the high standard which must be maintained before a boy should be given a certificate. We do not believe at Dartmouth that a graduation diploma and an admission certificate to Dartmouth are the same. We urge principals to recognize that when they sign a certificate they are making themselves at least partly responsible for that boy's presence in college. The certification of any boy who is not of proper Dartmouth caliber, no matter how personally worthy a candidate he may be, is unfair to the college, the pupil, and the principal and school whose approval he bears. Dartmouth sets

no definite mark which must be gained before a pupil shall be certified. We recognize the great difference in standards in various schools, and, accordingly, the wisdom of permitting each school to set its own standard for certification. We view, with apprehension however, the issuance of a certificate to a pupil whose standing was below eighty-five. In the correspondence which has been carried on recently with the schools which we have had to warn or remove from our approved list, this point has been definitely insisted upon. Many schools claim that they did not understand what we expected of a boy admitted by certificate; now that we can get in personal touch, either by a visit or correspondence, with each principal, we hope that the number of boys admitted by certificate gained by the poor judgment or willful misunderstanding of the principal will be greatly decreased.

Furthermore, this personal touch with the schools enables us to explain to principals the type of boy who can profit by a course at Dartmouth, and the type of training which we are endeavoring to give. It is our feeling that if the old New England College is going to continue to contribute to the welfare of the nation, it must do so by an increasing degree of specialization. We have no quarrel with our secondary school friends who urge us to consider the multitude of new courses which the modern high school must offer, but which a college like Dartmouth does not accept for entrance credit; to them we simply say that Dartmouth frankly exists for only a certain type of boy—the intellectually qualified, —that our physical limitations in buildings and endowment make it impossible for us to have more than about fifteen hundred in our student body, that our curriculum is such that it would be unfair to admit boys who have pursued merely vocational work in the high school. The state university has come to stay. We in New England colleges will feel its competition more than ever. It will teach everything to everybody. Its doors should be open to all. Does not the increased strength of the state university necessitate a greater degree of specialization on the part of the New England privately endowed college? Is it not possible that Brown and Dartmouth may make their biggest contributions to American life by saying frankly that certain students—splendid material as they may be—should not come to us? Perhaps our type of education is "old-fashioned." Perhaps we are far out of

date in requiring mathematics of all freshmen, and Latin of all B.A. candidates. Nevertheless, it may be that just such requirements will make Brown and Dartmouth more useful in the future. The executive secretary of the Committee on Admission feels that his biggest contribution to Dartmouth during the past fall has been, not in urging any boys to come to Dartmouth, but in persuading certain boys who had Dartmouth aspirations that they should go to another type of institution, which would develop them much better along the line of their interests. If we could discover the 13% of our student body that is annually dropped for poor scholarship, and persuade them not to come to us, but to go elsewhere, we would be doing both them and ourselves a service. This specialization is much more easily accomplished when a college is in personal, direct touch with a school.

This is not to be construed as an attack upon the New England College Entrance Certificate Board. The speaker had the pleasure of attending one of the meetings of that Board, as the representative of Bowdoin. He rather boldly defended the Board, in print, against the very unfair attack which was made upon it two years ago. He has the honor of representing a college which was, with Brown, largely instrumental in the establishment of the Board. It is his hope that the New England College Entrance Certificate Board will continue to serve New England colleges and schools, as it has in the past. The withdrawal of the three women's colleges, probably to take place in 1919, will, it is likely, cause some changes in the methods of the Board. Dartmouth feels so strongly the value of the policy of getting in personal touch with the schools that she urges the Board to consider some system of personal visitation. Dartmouth feels, and publicly acknowledges, her debt to the Board. If she, through her new plan, can contribute any suggestions, she will be paying but a part of this debt.

What is Education?

By Professor Ernest C. Moore, Harvard University.

I judge that your experience has been like mine. After teaching classes of many kinds and helping to train teachers and supervising them in their work I began to have a great desire to know quite definitely what I was trying to do, what is that we are trying to do. So for the last two or three years I have been asking myself the question "What is Education?"—and persistently trying to find an answer to it. I want to invite you to consider the question and some of the answers which may be given to it. Let us proceed after the fashion of a painter who begins by making a daub of color upon his canvas and rubs it away until he has left only the outline of the picture that he wants.

The most important thing about any person is what he cares for, what he strives for, what he plans and seeks to achieve. What he plans and seeks to achieve depends upon his notion of things in general, upon what kind of a place he believes that this universe is, that is upon the kind of philosophy he keeps. Mr. Chesterton has it that no matter what our walk in life our philosophy is the most important thing about us. He says that if a landlady is renting a room to a lodger the most important thing for her to know about him is not the size of his bank account or his pay envelope, but his philosophy. For while his pay envelope or his bank account may be large, it may not be a part of his philosophy to pay his debts. In which case she should not rent a room to him. And that if a general is about to fight a battle with an opposing army it is important for him to know the size of that army and who is in command and if possible what its plans of battle are, but much more important for him to know what sort of a philosophy beats in the breast of every one of the enemies' soldiers. I have wondered if the German leaders have not many times since the war began realized that this statement is true, that the most important thing for them to take account of was the philosophy of the French, the English, the Russian and the Italian

soldiers who oppose them. At any rate the most important thing about any teacher is his philosophy, his notion of what education is and what it is that he is trying to do when he attempts to teach his classes and educate the young. Can one have a sound philosophy of education and be a poor teacher? Not if ideas count for anything in our work. Can one have a poor philosophy and be a good teacher? Again the answer is, not if ideas count for anything in our work. But they do count for something; they set limits to our undertaking; they define our task; they are our plans of action. One might as well talk of building a house without any plans or any notion of what he wants it to look like when it is finished as to talk of instructing the young without any notion about what that instruction should be, how it should be given or what it should lead to. Such haphazard efforts would not produce a house and such haphazard efforts will not and do not result in instruction.

I want to take two current definitions of education which seem to me to be thoroughly wrong and to tell you why they are wrong and then to offer a definition of education which seems to be sound and to show you some of the conclusions which follow from it. The first definition of education that I want to criticise is that education is the imparting of knowledge. The view of those who hold this definition of education and attempt to work by it is that some folks have knowledge and others do not and the business of teaching consists in taking it from the places where it is and putting it into the places where it is not. Instruction consists in this transferring of knowledge. The trouble with this view is that it is universally regarded as bad form to say "I learned him reading or geometry," or to use the verb "to teach" with that meaning for the reason that in the last analysis he must do his learning for himself. I may keep a confectioner's shop and impart or hand out candy to you if you come and put your money on the counter or I may keep a wood and coal shop and shovel coal into your cellar if you give me an order, but no one can do that with knowledge for knowledge is not that sort of thing. It is made up of thoughts and thoughts cannot be handed around, or transmitted through the air or sent from one person to another. They are peculiarly personal. Each one has his own and never any but his own. He can never give them away or get any new ones save by generating them within himself. They cannot be shared any

more than toothaches or headaches can. They grow out of sensations, perceptions, images, memories, conceptions, volitions, etc. Can sensations, perceptions, images, memories, conceptions and volitions be handed round or imparted by one man to another? Can any one share his perception with me or transfer his images or his memories to me?

"But he can tell you about them." Yes, he can tell me about his toothache also, but that is a very different thing from imparting his toothache to me or sharing it with me. I must have a toothache of my own before I have any realizing sense of what the toothache is and one must have perceptions, images, memories and conceptions of his own before he can have knowledge of any matter.

The root of the error that knowledge can be imparted is in our current definitions of what language is and does for us. We say it expresses thought, that it is the vehicle of thought, that it conveys thought or imparts thought. It does nothing of the kind. When one listens to a conversation or a lecture thoughts do not fly into his mind riding on his friend's words, or accompanying the air disturbances which the lecturer makes. When he reads a book they do not rise in a swarm from its pages and lodge in his brain. I sometimes put the matter thus to my classes: Suppose we leave all the books inside the Widener library and take all the folks out and then lock and seal the doors. Are there any thoughts inside the library? Not a single thought—there are only black marks on white paper inside there. They are not thoughts, for thoughts are live things and exist nowhere but in the living minds of thinkers. If language conveyed thoughts and I spoke Arabic to you since Arabic is a perfectly good language, you should at once experience the thoughts which go along with my words; but something else is needed in order that you may have those thoughts. You have each of you had the experience of coming across a new word. Did it convey any thought to you? The one thing which new words do not do is to convey the thought for which they stand. I submitted one of them to my classes recently. It imparted nothing of its meaning to them when they first heard it; it was only a combination of sounds. I want to try it on you. It is a good word, for Shakespeare uses it. I wonder if it will convey anything to you. The word is *thrasonical*. Now all the words which we use were new to us once and as long as they were

new they conveyed no thought to us. As soon as we could make a meaning for them, as soon as we became able, whenever we heard them to attach our own thought to them hearing them occasioned thoughts within us. They are only sounds which call up thoughts within us, but the thoughts they call up are our own thoughts, not the thoughts of the speaker who utters the word. Sometimes they are like his, but more often perhaps they are not. The same is true when we read a book. It consists only of black marks upon a white page. We must supply all the thoughts which those marks stand for. Sometimes we can do that, often we cannot, but the thoughts which we have when we read are always our own. They may be like the writer's. It is not easy to tell. For example, when Shakespeare uses the word *honour* it is hardly likely that his reader thinks the same sort of thought on reading it that was in his mind when he wrote it. We have our thought of what the marks which he put down mean. His most careful readers have not been able to determine whether we should regard Hamlet as sane or insane or both sane and insane.

Since the thoughts which we have when we listen to a conversation or a lecture or read a book are our own thoughts—our thought of what the speakers' words mean or what the marks in the book signify the view that language imparts thought must be given up. But if it does not impart thought what does it do? It is nothing but a series of signals which occasion thoughts in the mind of the person who is able to make them out or make meanings to fit them. Language does not impart thought, it provokes it or demands thought, or arouses thought or excites, stimulates or necessitates thought. Instead of saying I can or cannot get thought out of this book we ought to say I can or cannot make this book out. It takes a poet to read a poet. The act which the reader performs is always a creating. The author through his book, supplies the raw material for that process, the reader must convert the marks which he has put down into thoughts.

Now it is this that makes teaching a fine art. If it were simply a process of supplying thoughts for others to take it would be a relatively simple matter. Instead of that it is the most difficult process known to men—the process of so working upon other minds that they will generate within themselves the thoughts which society wishes them to have and employs us to produce within them. But that is another consideration. It is quite clear

that the teacher is never an interpreter of thought. He is instead a provoker of thought, which is Plato's view of his function.

Since education cannot impart thoughts, a good many folks have taken the position that it has a wholly different sort of duty. They say that the minds we are born with are very imperfect minds, very blunt instruments, that they need to be perfected, improved, sharpened, polished, drawn out, made over, disciplined, etc. That the business of education is to improve and perfect the mind. That the faculties which we bring with us at birth must be developed and perfected. That education should give us a new memory for our old one, a new power of thought for the power of thought which we brought with us. A new faculty of imagination, observation, will, etc. All this sounds quite as plausible as the captivating promise of new lamps for old in the famous story and many there be that are deceived by it. Whatever else education can do or cannot do I am convinced that it is not the business of the teacher or any part of his business to get inside the mind and do any burnishing or repair work there. The notion that that sort of thing is what he should try for is a monstrous notion.

There is in the Harvard Club at Boston a room which is set apart for the use of the graduates of the medical school and over the fire place in that room is an inscription, a single sentence which contains the whole philosophy of the medical profession. It reads: "We dress the wound, God heals it." If a devoted teacher should attempt to frame a similar motto for the teaching profession what form should it take? Something like this I think: "We help folks to use their minds. God makes them." Surely we do not create the mind or add any cubits to its stature. The notion that we do is a profanation.

Now if education is not the imparting of knowledge nor the creating or renewing or improving or perfecting of mind what is it? Let me give you an illustration— A subnormal child comes to school. She is feeble-minded let us say, somewhat above the helpless and below the normal. The teacher, if she is a wise teacher, does not send the child home saying "I can do nothing for you." Neither does she try to impart what she knows to that child, much less to convert her mind into a normal mind. These things she cannot do. But there are certain things which even a feeble-minded child can learn to do. She can button up her own

clothes, comb her hair, keep her hands and face clean, sit quietly, learn to read, to iron, to sew perhaps, and a number of other acts which are socially useful. The teacher teaches her to perform these acts. Now this pathological case furnishes us just the view that we need concerning the normal one. Education is always that sort of thing. It is the process by which one learns to use his own mind in socially profitable ways in the making of his own knowledge.

According to this view knowledge is always a kind of skill. It is always a doing and the acquiring of it in every kind of school which is properly conducted and whose teachers understand what they are about is just such a process of learning to work with the great tools which the human race invented to assist it in living, as the blacksmith's apprentice undertakes when he goes to the shop to learn the blacksmith's art.

This view you see makes a clear cut distinction between facts and truths and knowledge. There are many more facts than truths and many truths that do not belong to the field of knowledge. Every mental happening is a fact. My shoe squeaked just now, or my pen broke, or a fly buzzed, or a leaf fell, or a match went out, or the notation of any happening or existence whatever, is a fact. Truth is a different sort of thing. It is always a relation between anticipation and outcome. I think it is nearly nine o'clock, yes the clock is striking now. My conjecture was true. Truths always come true, they always reveal themselves by verification. But the truth that it is now nine o'clock, or that my anticipation of today's weather or my fears concerning the suffering the dentist might cause me or the length of the opera, have been verified, such truths as these do not belong to the field of knowledge. That is a higher and a holier name that we save to designate that much smaller body of facts and truths which have persistent survival value. If my books are in a heap on the floor and I must arrange them on my book shelves I can do so in many ways and by noting and following the guidance of many different facts. I can arrange them by authors or subjects or by the number of times the letter *a* or any other letter or the word *the* or any other word appears in them. The number of times the letter *a* appears is a fact and if I think it appears 1,756,569 times and by counting them carefully I find out that it does, that anticipation becomes a truth. Yet never for a moment am I tempted to

believe that this fact or that truth really belongs to the knowledge which I need in order to put my books on the shelves. I turn away from all such facts and truths and ask simply how can I arrange these books so that I can use them tomorrow and the next day and every day with the greatest ease and facility. Knowledge is always that sort of thing. It always has a guide book character. It is that body of insights and understandings which tells us how to give and take with the things and folks that surround us in the most effective and enduring fashion. It is always a learning to do on our part, always knowledge *of*—never merely knowledge *about*.

Now, when I had gotten as far as this in working out my answer to the question "What is knowledge," I came upon what was to me a very curious fact. Why is it that some of our studies have names that end in *ing* and others have names that end in *ic, ry or y,* as for example, reading, spelling, writing, logic, geography, history, etc. The boy who studies reading or spelling knows from the first what it is that he is trying to learn to do. The student who studies geography or history is in confusion and so is his teacher most of the time as to what it is that he is trying to learn to do. Perhaps he is not trying to learn to do anything, just getting knowledge that he will never thereafter have any use for. Then he can quite truthfully say with the girl who was asked if she studied geography in school, "No, I'm through with that." Life is too short for that kind of studying. It must be that we shall have occasion to use these studies over and over again, that we cannot get along without using them else our elders would not force us to attend to them. If that is so the reason why we study them is the same as our reason for studying reading and spelling. If that is the case they too should have names that end in *ing*. The student who studies geology is learning to geologize, the student who studies geography is learning to geographize. The student who studies history to historize. Much as you may object to the euphony of these locutions, these new names express better than the old ones what it is that we are trying to do when we pursue these studies. Either all studies have these values and this persisting significance or they teach us to know and only to know and if they do nothing more than that they are luxuries in a world where things persist because of their value and are valued because of our recurrent need for them.

The Relative Importance of Oral and Silent Reading

By Charles F. Towne, Assistant Superintendent of Schools, Providence, R. I.

The Earliest Duty of the School

ONE of the earliest duties, possibly the very first laid upon the public school, was that of teaching the children of the community to read. The ability to interpret the thought from the printed page was of great practical value because there were relatively few books, and information was passed on to others through the medium of the spoken word. Even after the increase in the number of books and periodicals oral reading held its place, because all methods of teaching little children to read demanded oral reproduction of the words in order that the teacher might make sure that the pupil was actually reading. It will be seen, therefore, that both the demands of society and the methods employed in the schools tended to place such a premium upon oral reading that in time *school reading* and *oral reading* came to be regarded as synonymous terms.

Changing Demands of Society

But the law of change affects social conditions and these in turn influence the work of the school so that today with the multiplication of books, magazines, the penny newspaper, typewritten reports, and the more graphic methods of presenting facts and stirring the emotions, there is a continually lessening demand for the practice of oral reading and a constantly increasing demand for power to rapidly and accurately grasp the thought from the printed page. Few adults ever find it necessary to read aloud, and wherever one must do so he seeks to familiarize himself in advance with the vocabulary and the content, if time permits. Probably ninety-nine per cent of the reading of adults is done silently.

Learning to Read and Reading

It should be noted that there is a distinct difference between the process of *learning to read* and that of *reading.* During the first three grades a great part of the time and attention of the little child is devoted to the mastery of the mechanics of reading. Beginning with the third grade, and with ever increasing force from there on, the emphasis changes from the attempt to recognize the word symbols to the larger and more difficult attempt to grasp the complete thought. Care should be taken, therefore, to distinguish between the methods to be employed in helping the little child to *learn* to *read,* and those to be pursued in teaching the older child *how* to *read.*

Definitions of Reading

Bearing in mind, then, the difference between *learning* to *read* and *reading,* let us consider the difference between oral and silent reading. More than ever before educators are impressed with the fact that the duty of the school is to prepare for life. This thought has further led them to carefully consider the relation of oral reading to silent reading.

The definition of reading generally accepted in the past was as follows:

"Reading is the process of getting the thought from the written or printed page and interpreting it to others."

Today the definition of reading takes some such form as:

"Reading is thought-getting from the printed page."

"Reading is thinking, not at random but in lines prescribed by the written or printed page."

"Reading is the apprehension of the thought and feeling expressed on a written or printed page."

It will be seen at once that the keynote of the old definition was expression, while that of the new is thought.

We note, also, that both definitions agree upon the need of getting the thought.

Silent and Oral Reading

In addition to the grasping of the thought oral reading adds the demand for such verbal expression that the audience—for an

audience of some kind is implied—shall understand the ideas and experience the emotions expressed by the author. Because of this last demand strenuous efforts are made by both teachers and pupils to overcome the long train of obstacles that block the path of expression. In the attempt to satisfy the demand for elocutionary style, the pupil's attention is often absorbed in the style itself to the exclusion of the thought. With alarming frequency teachers discover children whose reading sounds thoughtful, but whose real power to grasp the thought from the printed page is pitifully small. Results in geography and history often bear *silent* testimony to this fact.

It seems evident, therefore, that after the mechanics of reading has been mastered all reading is first done silently, whatever may take place afterwards. This holds true for oral reading, since no matter how closely the expression may follow the comprehension there can be no true reading until there is comprehension. Expression without understanding is not reading but merely word-naming.

Overestimating the Child's Power

It should no longer be taken for granted that as soon as a child has mastered the mechanics of reading he is in some mysterious manner endowed with the power to get the thought from the printed page. Such a presumption on the part of teachers has shipwrecked the prospects of many little children. When pupils flounder around in new reading material, stumbling over difficult words, wasting their own valuable time and that of the rest of the class, and in the end failing to produce even a passable oral interpretation of the thought, the teacher should pause and carefully consider the methods to be employed to meet the situation. It is useless to spend time finding fault with the previous training of the class. Instead, it should be ascertained at once how far they have progressed and a beginning made at that point. Poor oral reading is evidence of poor silent reading.

The Place of Oral Reading

If the above argument is sound it must follow that in the grades above the third oral reading is not an end in itself. The main

purpose of all reading is that of thought-getting and oral reading merely takes a subordinate place as one of several means by which the quality of the silent reading may be tested.

Standards and Tests

In this connection it is interesting to note the effects that standard tests are producing upon the methods of teaching as applied to reading. In order to formulate standards and tests for any subject it becomes necessary to analyze the different steps taken by the pupil in his efforts to master the subject. Naturally such keen analysis of the subject of reading makes it possible to determine with considerable accuracy whether the individual pupil is merely naming words or is really grasping the thought. It is noticeable that in many of the school surveys in which tests of this nature have been employed there often appears to be a great weakness on the part of pupils when they are called upon to give evidence of having mastered the content of the selection read. The reason for this condition is found in the excessive amount of oral reading to the exclusion of definite and practical training in silent reading. Many educators declare that continued emphasis on the necessarily slow process of oral reading practiced in the grammar grades really retards and sometimes stifles the power of rapid silent reading because the rapidity and clearness of the thought is hindered by the vocal processes necessary for oral rendition.

Standard reading tests give bright promise in another direction, namely as an aid to the diagnosis of the particular difficulties that trouble an individual pupil. It is not too much to hope that in the near future the teachers of the several grades may be able to apply such tests in their classes and thereby determine with reasonable certainty the weaknesses of each pupil. When this is done the instruction and drill work may be modified to meet the known requirements of the individual. However, until such tests have been devised and made available for the use of the teachers a large portion of the time devoted to reading in the grades above the third may well be spent in developing the power of thought-getting rather than the facility of reading orally without due regard for the thought.

The Differentiation of English Classes in the High School

By M. Catherine Mahy, A.M., Supervisor of English, Hope Street High School, Providence, R. I.

IN that speech so familiar to us all, Edmund Burke repeatedly impressed upon his hearers the truth that no government will succeed which is not adapted to the temper and character of the people, and England's disregard for the warning of her clear-sighted statesman cost her an empire. Today I am going to try to convince you that what is true in politics is true also in education, and that our failure to adapt our school system to the needs and capabilities of our pupils, if it does not cost us an empire, may seriously affect the welfare of our Republic.

Consider the change that has taken place in our public schools within the past generation. When we went to school, an English-speaking teacher faced an English-speaking class. Between instructor and pupil existed a common medium of communication—the first requisite of successful teaching. Moreover, teacher and pupil had inherited the common legacy of British traditions and morality and, in many cases, of British culture. Clearly what differentiation was then necessary could be easily effected by dividing the intellectually competent "sheep" from the mediocre or mentally defective "goats."

Since that time, however, there has been pouring into our schools an overwhelming tide of immigrants, Jews, Italians, Portuguese, bringing with them their alien speech and their Oriental or Southern European ideals. But high above the tide that breaks and foams at its feet rises that rock of conservatism, the American School System, with that marvel of self-satisfied equanimity, the American educator, sitting serenely on top, calmly teaching the same old British traditions in the same old English way. To be sure the waves do not know what he is saying and he doesn't know what the waves are saying; but never mind; he is upholding

the sacred traditions brought over in the *Mayflower*. What has he to do with the traditions brought over in the *Roma* or *Venezia*?

What is the result? From the steerage of the ocean-liner or from the homes of even the second generation in America the bewildered children throng into our schools. The teacher, knowing not one word of their native tongue and having no sympathy with their traditions, proceeds with a sublime disregard of all race prejudices and characteristics to impose on them a new speech, to awaken their reverence for new heroes, and to enkindle a new patriotism by teaching them to read parrot-like prose selections in which the settings and characters are largely British or American, or poetry, in which the simplest figure of speech presents to the foreign mind a perfect maze of difficulties. From the grades these pupils come to the high school, with the most meagre of English vocabularies and that but vaguely understood, and with no literary background except the pitiful one derived from selections in the school readers, only the baldest outlines of which they have been able to grasp. And so little does the high school remedy the difficulty that the brightest foreign boy, even when he reaches the senior year, is unable to reproduce in his own words a note from Shakespeare or Milton. Haven't you noticed in your tests how often the foreign pupil depends wholly upon memory and quotes verbatim the words of his authority? Some weeks ago I asked my senior class to read Ruskin's explanation of the passage in *Lycidas*, in which Milton denounces the English clergy. Later, in an examination, a Jewish boy, one of my best pupils, a boy born in this country and educated from the beginning in our public schools, quoted Ruskin word for word, but what those words meant to him I had no means of knowing.

We talk much of efficiency and economy. Wouldn't it be a good idea to stop talking now and go to work? We train our high school girls in Latin, French, and German, and then send them out to teach Italian and Portuguese children. We send a Jewish graduate of our schools to teach in the Italian quarter, and we send the Italian girl to teach in the Jewish quarter. Yet we are thinking of training young men to speak Portuguese and Spanish that we may compete with other nations in securing trade in South America, but in this other matter of the education of the immigrant, which affects our national well-being so much more vitally than

any mere material consideration, we will not exert ourselves to take radical measures, but are content with superficial experiments and temporary expedients.

Now I come to the English course in the high school. Consider the different elements that go to make up the freshman class. I shall take two divisions in my own school as typical. In the I A division all the pupils are American, many of them children of college-trained fathers and mothers, sons and daughters of professional men, born and bred in the atmosphere of books, heirs of the priceless heredity of English culture. On book-talk days my freshmen discuss such books as Robin Hood, Don Quixote, Mark Twain, and the works of Dickens, Scott, Cooper, Hugo, Dumas. One boy even informed me that he had found a "swell" new poem called *Paradise Lost*. Some of these children have carefully selected libraries of their own, and their home reading has been supervised by highly cultivated parents. In this same grade is the division known as I E, every member of which belongs to the foreign element, boys and girls who never hear English spoken at home, and who have never read anything outside of the school readers, except possibly the *Boston American*. Yet until this year, I blush to confess it, these two divisions have had exactly the same English course. Think of it! Think of asking the Jew from Russia to read *The Courtship of Miles Standish* with the same zest and appreciation as is felt by the little girl in I A in whose veins runs the blood of Miles Standish; of asking the child whose religious experiences have been those described by Mary Antin to respond to the serene Christian faith of *Snowbound*; of expecting the Italian, whose memory is still haunted by the rich colorings of his own radiant land, to admire the soft-hued English loveliness of Stratford; or of wondering why the boy who has lived in the shadow of St. Peters does not become rhapsodical over the sacred associations of Westminster Abbey!

This year, I rejoice to say, I had the courage of my convictions. My assistant came to me at the beginning of the year to report that the scholarship and discipline in I E were deplorable. After a talk with my principal, in which I assured him that the changes I contemplated would in no way impede the smooth running of his perfectly adjusted administrative machine, I collected

from I E all the copies of Irving's *Sketch Book,* giving the class instead Judd's *Classic Myths,* a collection of short, simply told stories, especially adapted to those unfamiliar with our language. This book we followed with the only other simple material in our book-cases, Hawthorne's *Wonder Book,* a collection of King Arthur stories, Dicken's *Christmas Carol,* and *Evangeline.* In grammar and composition, too, we drew a sharp line of demarcation. Instead of Hitchcock's *Practice Book,* which is used by the classical pupils, we gave I E Bulig's *Business English*; and instead of calling on them for original themes, in which the pupil would have to cope with the double difficulty of creation and the use of an unfamiliar speech, we read selections to the class, then dictated a list of questions to which we required answers in well-constructed sentences. Later we asked the pupils to write these sentences in the form of a connected narrative. This quarter we are making a special study of the business letter. Other points emphasized are spelling, enunciation, punctuation, oral reading, and the essentials of English grammar. In short, in so far as we are able, with the inadequate material at our immediate disposal, we are trying to give these boys and girls the training that will fit them for the place they must take in our social order, and at the same time keep their souls alive, that in the midst of the struggle for material existence they may still keep a window open towards a spiritual Jerusalem.

Of course this is only the first step in our experiment, but the result has been most gratifying. As soon as I E found that they understood what they were reading and that the composition work was teaching them something they all wanted to know, they became orderly and industrious. Now we want to carry our reform throughout the entire four years.

In planning a course for the foreign classes, my colleagues and I took into consideration:

1. The limited English vocabulary of the pupils and their lack of a literary background.

2. Their racial prejudices and characteristics, and their experience as immigrants.

3. Their immediate needs and the requisites of good American citizenship.

Bearing in mind these basic principles we laid out a course

somewhat as follows: A book of short stories, full of stirring action, dealing for the most part with contemporary life, and containing as little dialect as possible (Miss Tappan's collection in Volume X of the *Children's Hour,* published by Houghton Mifflin Co. is excellent, though perhaps being a volume in a series it may not be available): Mary Antin's *The Promised Land,* Jacob Riis' *The Making of an American,* and whatever other books we may be able to find that relate in good, simple English, experiences perfectly familiar to the pupils. Through such books as these we hope to establish what is at present so sadly lacking in our foreign English classes,—a bond of sympathy between teacher and pupil, as well as to build a bridge across the great chasm that yawns between the old life and the new. In this way we shall have an opportunity to show the children that we respect their race and are grateful for its contributions to our civilization. For we must let them know that we prize their traditions before we ask them to accept ours. We must do honor to Garibaldi and Dante before we ask the Italian to read the speeches of Lincoln or the plays of Shakespeare.

After our suspension bridge of sympathy is securely swung across the abyss we shall take the books that will train definitely for American citizenship,—Andrew's *The Perfect Tribute,* Hale's *A Man Without a Country,* Lincoln's Speeches, Webster's Bunker Hill Oration, Mr. Boardman's excellent collection of American Speeches, and such other selections from American Oratory as may appeal to the impassioned Jewish or Italian nature. For novels we shall take Churchill's *Coniston,* and other good works of modern fiction that will give the pupils an idea of the political and social conditions in their adopted country. Poetry we shall limit to the simplest sort, narrative poems like Browning's *How we brought the Good News,* or Alfred Noyes's *Highwayman.* So much for the material to be read.

As to method, we think that in classes so unfamiliar with our speech much should be made of dramatic readings, acted with such rude accessories of stage setting and costuming as may be available; and that selections from the assigned orations or poems should be learned and delivered. A Jew loves oratory; an Italian loves acting. Why not revive the old pedagogy of our ancestors who instructed the ignorant populace through the Miracle Plays,

and of the Hebrew Prophets who taught their unlettered people through fire-winged speech? We hope also that some time we may have a school library, conducted by a trained librarian, a part of whose business it would be to secure books that would appeal to our foreign pupils, and to collect pictures and illustrated editions. Pictures speak a universal language. We should also want in our library the current magazines that would interest the pupils in civic conditions, foster a love of debate, and at the same time furnish a practical vocabulary.

Let me say, however, that the course of reading here outlined is designed only for the alien not capable of taking the classical course. Any bright exceptions should be transferred to the other department. And do not think for a moment that I should advocate levelling our entire English course to the plane of the foreigner, thus depriving our American youth of their rich inheritance. In my senior class I have two boys who read *The Faerie Queene* for pleasure, another who delights in the style of Swift, and others who look bored if I mention a writer later than Dickens. To this element, too, we must remember that we owe a duty. It is theirs to cherish the roots of our culture until that day when the descendants of him who is now the immigrant, his literary life planted in the shallow soil of the present, shall strike down roots to mingle with ours,—an intermingling from which shall spring a new culture, not English, not Hebraic, not Italian, but American.

How Much Mathematics Should be Required for Graduation from High School

Superintendent Isaac O. Winslow, Providence, R. I.

THE question before us, regarding the amount of mathematics that should be required for graduation from high schools, is only one of the questions relating to the reorganization and readjustment of high school work that are necessary for its adaptation to modern conditions.

We are all familiar with the history of the secondary schools that has led to the need of such reorganization. Their original purpose was to prepare a selected few for college and for the learned professions. It is easy to understand how a curriculum adopted long ago for such special purposes may fail to meet present needs. Aside from the development of changing judgment of the relative values of the subjects of study from a purely subjective standpoint, changes in the needs of the young people who are now attending the high school's call for corresponding modifications in the work to be provided for them. The high schools are no longer select. They have become the schools of the people and must be conducted accordingly.

The difficulty is that the extended course in mathematics that was once required without question, when there was room for it in the meager curriculum and when pupils of the select type could easily cope with it, has been retained in the requirements notwithstanding the changed conditions that have rendered it unprofitable and inconsistent. After murmurs of doubt began to arise over the question of values a defense was found in the Doctrine of Formal Discipline, according to which mental discipline in the line of intellectual effort that did not give promise of practical application was held to have effects that would be transferable to other lines of more practical activity.

There is now a generally accepted understanding that the doctrine has been exploded and that there is no longer a basis of de-

fense for the continuance of any subject in the curriculum that can offer no higher claim than the transferable effects of discipline.

I am not yet prepared to accept that position as a final and an exclusive conclusion. I believe that the claim that any amount of mathematical training can have no effect whatever upon the application of mental ability in other spheres is in need of further evidence.

The question, however, is a relative one and the mathematicians have the burden of the proof that any benefit that is indirectly secured by transfer is superior in either quantity or quality to equivalent ability that might be developed in other lines of educational pursuit that are directly connected with practical life.

Although it may be deemed that advanced mathematical discipline is economical and worth while to those who have much mathematical ability and are able to obtain the benefit by a comparatively small expenditure of time and effort, there remains the further serious question how far down in the scale of natural ability this position will hold true, since our subject relates to the minimum amount of mathematics that shall be required of all.

It is to be readily granted, of course, that advanced mathematics is a proper and a necessary subject for all who are to pursue courses in engineering or whose prospective occupations will require it. The same necessity still appears to rest upon most of those who are preparing for college, but this suggests a branch of the subject which I have neither the time nor the disposition to discuss on this occasion.

In addition to these necessities I am liberal enough to concede that a further class of students, to whom mathematical study is pleasurable and not difficult, may derive a warrantable amount of subjective disciplinary benefit within the range of the mathematical sphere, regardless of the question of any possible transfer.

After we have made these concessions for the purpose of a clear understanding in regard to the minority, we must turn our serious attention to the greater number to whom, after they have received as much mathematical training as is requisite for practical application in the ordinary conditions of life, the only further advantage must consist in abstract mental discipline, and to whom mathematical studies are somewhat difficult. We are liable

to be deceived in regard to the amount of actual mathematical thought that is involved in the accomplishment of daily lessons in algebra and geometry, especially for those who are not naturally and easily inclined toward quantitative forms of thought. Every step in the solution of an algebraic equation involves genuine perception or conception as a necessary ground of its validity. But the ordinary student, although he may have listened to an explanation of the rational side of the matter soon loses sight of it and follows the successive processes through fixed habit or in accordance with memorized rules. In the introductory explanation, for example, he sees clearly enough the reasons for the rule for the squaring of a binominal, but afterward he applies the rule repeatedly without a mental repetition of the reasons for it.

In a class of students who were making a glib recitation in algebra the other day, when one was asked the question why she changed the sign of a quantity when she transferred it to the other side of the equation, she shrugged her shoulders and looked toward the teacher as if to imply that the question was foreign to the subject. That young lady, if she had been wise enough, might have consistently protested against interruption by such a question, since the very purpose of algebra is to render it possible to secure practical results, or the answers to difficult questions, with a minimum expenditure of mental effort. It would be easy, on account of the very nature of the subject, to make out a case against the employment of algebra as a means of mental training and it is easy to understand that such discipline is really obtained during only a small part of the time that is expended in the performance of algebraic processes.

The subject of geometry, as it is pursued in the schools, is a union of logical discipline with practical measurements and spatial relations—a union that is considerably forced in the interest of the logical side of the partnership. For the purpose of the practical application of geometric facts and principles in the lives of those who are not preparing for any professional career, or any educational career beyond the high school, there is little value to be derived from such strict observance of logical processes as is required in elementary courses and text-books. Two-thirds of the propositions of the first book of the geometry, although not strictly axiomatic according to the keenest distinctions of logic, are yet

sufficiently so for ordinary purposes. The wondering student may be almost justified if he considers it an impeachment of his intelligence when he is required to prove, for example, that only one perpendicular can be drawn to a line at a given point or that vertical angles are equal. To the class of pupils that we are now considering it would be more economical, and sufficient for any valuable purposes, to simply call attention to such truths and pass on, without the slow processes of the logical proof of that which seems sufficiently obvious. It would be more profitable to provide for the development of the rational faculties in connection with other subjects of greater practical moment.

It is a deplorable mistake to lead such pupils through prolonged courses in algebra and geometry while we are regretting that there is not room enough in the curriculum for other training that is urgently needed as a preparation for intelligent and satisfactory citizenship.

I am still too conservative to agree to the proposal to omit all mathematics in the high schools. If the most desirable and fully equivalent substitutes had been worked out, such a plan might be defensible, but under present conditions I would still retain a minimum of the old order. I am prepared to take the ground that only one year of mathematics should be required of all students. The young people should have at least that amount of respect for their ancestors. In other words, algebra and geometry are such universally familiar subjects and are so commonly mentioned in conversation and literature that for social reasons alone some passing acquaintance is desirable. More seriously, there may be a sufficient amount of practically valuable matter in each of these subjects, if judiciously selected, to properly occupy a half-year in the school curriculum.

No text-books entirely suitable for the purpose have yet been published. Such books will probably appear when the demand is manifested, and when authors can be found who do not know too much about their subjects to be able to present them in a simplified form, and who know enough about children and the common level of life to be able to get the proper perspective.

My answer, then, to the question proposed must be that as a universal requirement for graduation from high schools a full course of mathematics for one year should be sufficient.

Some Significant Facts in the History of Reading as a School Subject

By Guy F. Wells, Head of the Department of Education, Rhode Island Normal School.

A DISCUSSION of a test of reading ability which is concerned alone with facility in gaining thought from the printed page naturally raises various doubts and questions in the minds of teachers accustomed to look upon the oral element in reading as the essential factor. Is it appropriate to use the term "reading" without qualification in application to the thought-getting element alone? What account is to be taken of facility in oral expression, the proper use of the voice, ability to read entertainingly, and knowledge and appreciation of literature? Can any test properly be called a "reading test" which neglects these factors? Are they to be considered as relatively unimportant or are they to be transferred to other subjects? Fortunately there is now available for our use a considerable body of literature dealing with this important subject from the standpoints of its values, content, and psychology. But whether we seek illumination by way of the recent studies and writings on the subject, or by way of our own investigations, we may get a helpful point of view for our study from a preliminary glance at the history of reading as a school subject, and thereby become somewhat acquainted with the experience and tendencies of the past.

From the standpoint of the development of reading in this country one may make the following divisions in time, without implying that any of the changes were brought about suddenly or that any year marks a noticeable change: the colonial period, 1780 to 1890, 1890 to 1908, 1908 to the present. The elements involved in the various stages may be conveniently classified under form and content.

In the colonial period the form element involved the recognition of the symbols and a small amount of ability to read orally

and for thought. Stress was placed on learning the content,; which was religious and made up mainly of material taken from the Bible, the Psalter, and the catechism. In New England during the 18th century the material read was for the most part in the New England Primer and the Bible. Here, then, we may say that attention was given to both phases with possibly an equal emphasis on both.

In the century and a little more extending from the end of the colonial period to approximately the last decade of the 19th century there were of course noticeable changes in the subject of reading, although not as great as might have been expected. The formal element involved, as before, the recognition of the symbols of reading, but a much greater emphasis came to be put upon the oral element. The point of view held during the larger part of the period is shown very clearly in Webster's Spelling Book and his Reader, which supplanted the New England Primer and were used generally over the country. In fact it is certain that Webster's ideas were a very important influence in determining the view taken by other writers and teachers who followed him. The sub-title to the Spelling Book, which contained reading material as well as lists of words, was "An easy Standard of Pronunciation." The Reading Book, which was published in 1785 had for its title "An American Selection of Lessons in Reading and Speaking . . . to which are prefixed Rules of Elocution and Directions for Expressing the Principal Passions of the Mind."

An interesting commentary on the actual practice which developed from the use of Webster's books and others of similar nature is found in the Report of the American Institute of Instruction for 1837. The statement made by the writer is as follows:

"In the course of my visits to the schools I was struck with the heavy, dull, vacant countenances of the pupils, the cause of which quickly appeared. For, when the reading classes took their places, it was easy to perceive that the mind was no farther engaged in the exercise than attention to the pronunciation of the words required. As to the comprehension of the *meaning,* the language might almost as well have been Greek, or Chinese. . . . An inveterate habit of mechanical reading is formed which not one in fifty can overcome. Here lies the grand impediment

to the attainment of knowledge, the impassable barrier to self-education."

Partly because teachers held the view that oral work was the important element, in the period we are considering, the content of reading changed surprisingly little; and whether it was made of one kind of material or miscellaneous extracts, or taught by means of one book or a series, it was in the main composed of fragmentary selections, which were non-literary and unsuited to the interests of children. Horace Mann said in 1839 that he believed that the reading books then contained more separate pieces than leaves. "A solemn inculcation of the doctrine of universal peace on one page is followed by a martial slaughter-breathing poem on the next. A catalog of the names of the Old and New Testament is followed by a receipt for making good red ink."

In the last part of the 19th century and the first part of the 20th more attention came to be given to the content element, and there was a decided improvement in this phase of reading and in the standards by which it was selected. Leading educators criticized the over-emphasis on oral reading, particularly because it stressed what they considered a relatively unimportant element at the definite sacrifice of acquaintance with and appreciation of the wealth of literary material available. President Eliot made the following statement in 1890 with regard to the content of reading:

"It would be for the advancement of the whole public school system if every reader were hereafter to be absolutely excluded from the school. I object to them because they are not real literature; they are but mere scraps of literature, even when the single lessons or materials of which they are composed are taken from literature. But there are a great many readers that seem to have been composed especially for the use of children. They are not made up of selections from recognized literature, and as a rule this class is simply ineffable trash . . . The object of reading with children is to convey to them the ideals of the human race; our readers do not do that and are thoroughly unfitted to do it. I believe that we should substitute in all our schools real literature for readers."

In spite of the fact that the content improved markedly after

1890 the old point of view persisted, and habit and the natural tendency to emphasize the formal kept the stress largely on the oral element.

During the last six or eight years various tendencies in elementary school practice and theory brought a decidedly new emphasis in reading. Among these may be mentioned the tendencies to reorganize the elementary school curriculum with consideration of the acutual needs of society, to provide specific means to accomplish definite purposes, to criticize and measure results, to test methods of teaching in view of the objects sought, to emphasize the importance of ability to study, and to bring educational psychology into operation. All of these have contributed to the opinion now generally held by writers on the subject that reading should be considered primarily a tool subject with practically all the emphasis on skill in using books effectively to gain the author's thought. This is not at the sacrifice of the study of literature, for its importance is so clearly recognized that it is either given a separate place in the curriculum or made a major element in the general subject of English. There is no denial that attention should be given to oral expression, but it is held that there are better ways of getting appreciation of literature than by the oral rendering common in the past.

Whatever may be our opinion regarding the tendency of the last few years, any attempt we may make to investigate the facts or to justify a position we may take must begin with a recognition of the fact that oral reading has for a hundred years and more received most of the attention to the neglect of training in thought-getting and appreciation of literature. The present attitude of students of the matter represents a long experience. If in conclusion we return to our original question as to the propriety of using the expression "reading tests" in application to silent reading alone, we must say that custom among educators has come to justify the usage, and if we wish to object, the obligation of defining our special use of the term rests upon us.

The Significance of the Measurement of Ability to Read[1]

By H. A. Brown, Director of the Bureau of Research, New Hampshire Department of Public Instruction, Concord, New Hampshire.

AN eminent American educator has declared that the present age is a transitional period in education.[2] In this he is profoundly right. The accumulation of scientific data as a basis for educational practice has reached such a point that the breakdown of traditional methods of procedure is now taking place more rapidly than at any previous period. We are now progressing steadily in the direction of making scientific information, secured through experimental investigation, the basis of schoolroom work. At the same time we are more and more disposed to avoid those easy generalizations and inexpert opinions about education which have prevailed in the past. The whole movement in the direction of the more exact measurement of the results of teaching is an important part of this modern scientific tendency.

In the measurement of reading ability the first important consideration is to determine what to measure. It has been true in the past that some schemes have been devised to measure abilities, knowledge of which is of no practical importance. We must, then, first of all decide what the important factors in reading efficiency are. In the first place, of two readers whose grasp of content is equally great that one who can read the larger amount in a given time has greater reading ability. Rate of reading, then, appears to be a very important factor. Again, of two people who can read the same amount in a given unit of time, that one whose grasp of content is greater is the better reader. In this case, the individual who can remember the larger amount of what he has read and who can remember it more correctly is

[1] Address delivered at the Brown University Teachers' Association, Providence, R. I., April 1, 1916.
[2] Snedden, David. Problems of Educational Readjustment, pp. 1-32.

the more efficient. The whole question of reading efficiency reduces to this: the reader who can read the largest amount in a given unit of time and whose comprehension of what he has read is best has the greatest reading ability. The two things, then, which must be accurately weighed in order to have a complete measure of reading ability are: (1) rate of reading, and (2) comprehension. Now the main purpose in teaching children to read is the development in them of the power to get thought from the printed or written page. The fact that a child or a class has the ability to pronounce words fluently cannot always be taken as an indication of good reading, for it may not be accompanied by adequate comprehension of the thought. For example, a child may be obliged to spend an half hour to read a page in such a manner that he comprehends the thought to the degree that he can reproduce eighty per cent of the content. Another child may be able to read the same page with an equally efficient understanding in a few minutes. The second pupil is, of course, a much more efficient reader. Among school children all degrees of comprehension are found combined with a wide range of reading rates. Real efficiency demands a satisfactorily rapid rate of reading *combined with* an adequate power of comprehension. In the measurement of reading ability it is necessary to unite these two factors into a final measure which shall represent the total reading ability of a child or a class. The test which I shall describe is designed to measure the ability to interpret, to remember and to reproduce in writing what has been read, and involves also the element of speed. It is, of course, understood that other tests can be devised to measure other aspects of reading. The aim of this test, in a word, is to measure the child's ability to react to the total situation presented by a piece of connected discourse in printed form. This is what we frequently have to do in life.

The plan of the test is that the children shall be given a certain specified time in which to read silently, after which they shall be required to reproduce in writing as much as they can remember of what they have read. With the data thus gained it is possible to score the different elements in their reading ability.

The test, which is a simple story adapted to the interests and understanding of young children, has been divided into forty sections, each of which represents a unit of the thought. The

idea expressed in each of the sections has been condensed into a short statement and these are called the key, and numbered to correspond to the numbers of the sections. Each point in the key is intended to express the essential idea contained in the corresponding section of the test. This key as a whole is intended to express the main thought, the gist, the thread of the story of the original. It is intended to be such a reproduction of the thought of the test as would represent a degree of comprehension worthy of being scored as perfect. This key is used as a means by which to score the child's written reproduction with the object of finding out how well he has grasped the essential ideas or, in other words, carried the thread of the story.

The selection used for the test is printed as a folder in the form of the two pages of an open book when it lies before the child on the top of his desk. It makes just two pages. The test papers are given out to the children on the tops of their desks, with the printed side down. The procedure then is to give a signal by saying "Start," at which the children turn their papers over and begin to read silently. At a second signal, which is given by saying "Stop," each child promptly ceases reading, draws a circle around the word at which he left off and immediately turns his paper over. The children are allowed one minute in which to read. At the end of the period allowed for reading the papers are collected. The children are then asked to write all they can remember of the story. For this they are allowed all the time they need.

Data are now at hand for the determination of each child's score in the two factors in reading ability.[1]

(1) The rate of reading is first found by counting the number of words read by each child. This is expressed in words per second.

(2) In the determination of comprehension two elements are taken into consideration,—the quantity and the quality of reproduction. (a) Each child's written reproduction is carefully examined and the number of the points in the key which are reproduced by him is determined and expressed as a percentage of the

[1] For a more complete discussion of this whole plan of measuring reading ability see Bulletin No. 1 of the Bureau of Research of the New Hampshire Department of Public Instruction, entitled "The Measurement of Ability to Read."

total number in the portion of the selection which he read. For example, in the part read by a certain child there may have been twenty points and he may have reproduced five of these. The amount reproduced was, therefore, twenty-five per cent of what he read. This is called quantity of reproduction. In ascertaining the number of ideas reproduced by each child to get the measure of quantity, every idea is counted which in most respects is complete and in general correctly stated, even though some of the less important details are lacking. (b) The reproductions are examined a second time and only those ideas counted which are entirely correct in every respect and of which every detail is reproduced. This is called quality of reproduction. The average of quantity and quality is taken as the measure of comprehension.

But a measure of rate of reading and comprehension taken separately will not prove satisfactory. One child may have a high reading rate, and a low comprehension. A second child may have a low reading rate, and a high comprehension. It may be difficult to determine the exact difference in ability in such a case. It is necessary that some method be established by which the total reading efficiency of an individual or a class may be expressed in a single figure. For this purpose the product of the child's comprehension and rate of reading is taken as the measure of his reading ability. In this computation the percentage of comprehension, as, for example, 41.15 per cent, is regarded as the number 41.15 and is multiplied by the rate. If the rate in this case was 2.15 words per second, the reading efficiency would be the product of these two numbers, or 88.47. It is thus possible to express the child's total reading ability in a crude, more or less inexact, but fairly comprehensible form. There is, of course, no mathematical relation between these figures. This plan is adopted purely arbitrarily as a convenient means of expressing reading power in definite comparable terms. Any child's reading efficiency may be found by taking the product of the number representing reading rate and that representing comprehension.

In scoring the papers the key and the child's reproduction are placed side by side on a table. The first point in the key is examined and then the child's reproduction is carefully scrutinized to see if it contains the idea. It is borne in mind that the child's language may be entirely different from the wording of the idea in the key. The purpose of the one scoring the paper is to see if

that idea is expressed in the child's own language or sufficiently plainly implied to be credited for quantity. If so, it is scored. Each point is considered in the same manner. Each idea is next examined with reference to quality and scored if it meets the requirements. When the entire paper has been examined, the number of ideas credited for quantity and the number for quality are counted and each expressed as a percentage of the total number in the portion of the selection read by the particular child in question.

The reason for getting comprehension by the method used needs a word of explanation. Many children will reproduce a good many ideas with some inaccuracy and some omission. They should have some credit for this but less than full credit to the extent that their reproduction is incorrect and inaccurate. It is believed, after scoring over four thousand papers in this manner, that, by getting quantity and quality of reproduction by this method and averaging them, a very fair estimate of the child's comprehension is secured. Quality serves as a check on quantity and reduces the child's mark for comprehension in proportion as his work is inaccurate and incomplete.

A new term has recently come into use in educational discussions. We are beginning to speak of educational diagnosis. This word represents a tendency. We are giving more attention than at any time in the past to individual pupils. An attempt is being made to take account of individual differences and adapt instruction to the scientifically determined needs of each pupil. It is possible with an adequate reading test to diagnose in a fairly accurate manner both class and individual needs in reading. By expressing the results of a reading test in the form of graphs and appropriate tables, both of which show the results for individual pupils, it is possible to determine with some accuracy in what respect the class as a whole or the various individuals are deficient.

I shall present now, for purposes of illustration, the data from an actual third grade. This grade stood second among thirteen third grades which were tested and represents a somewhat satisfactory efficiency. Examination of the graphs which are given shows that the rate of reading, the comprehension and the reading ability of the class as a whole are high. The rate of reading is seen to be very high.

It is possible from these graphs to get an accurate picture of the condition of the class. Fig. 1 shows the reading rate, and it appears that there is a variation larger than ought to exist in a grade but no larger than that usually found. The average comprehension of the class is high, and the reading efficiency is also

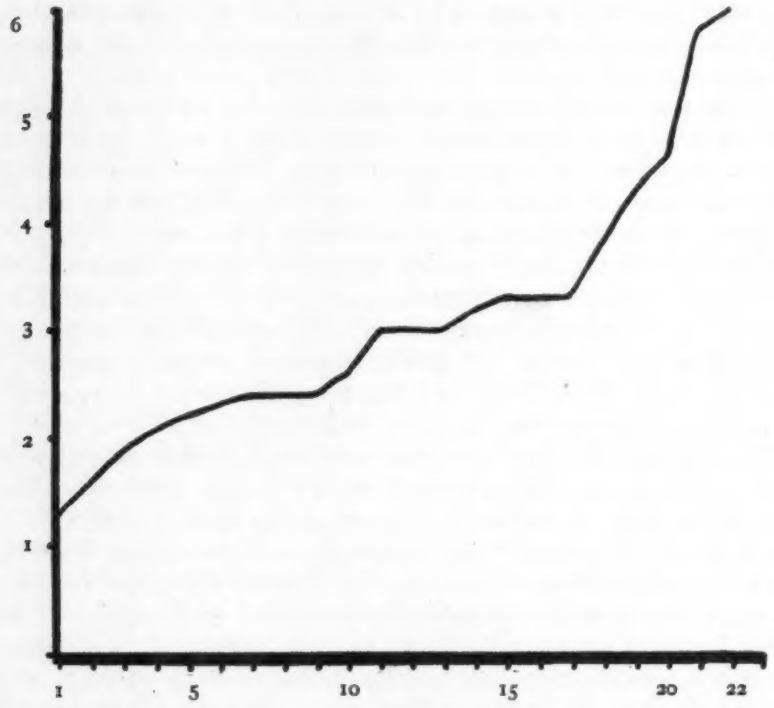

FIG. 1—Curve representing the rate of reading in a third grade. The scale along the base of the figure represents the numbers of the children in the grade. The scale at the left shows the rate of reading in words per second. The papers were arranged in the order of rate of reading.

high. We find individual variations in comprehension and reading efficiency, but these are not nearly so great as in most of the classes thus far tested. In fact, it can be said that the class is in a rather satisfactory condition in this respect. While the rate of reading is high, there are, however, ten pupils whose rate is con-

siderably below the average. They should be given special quick perception practice daily to bring their rate of reading up to a higher standard. There are ten pupils whose comprehension falls

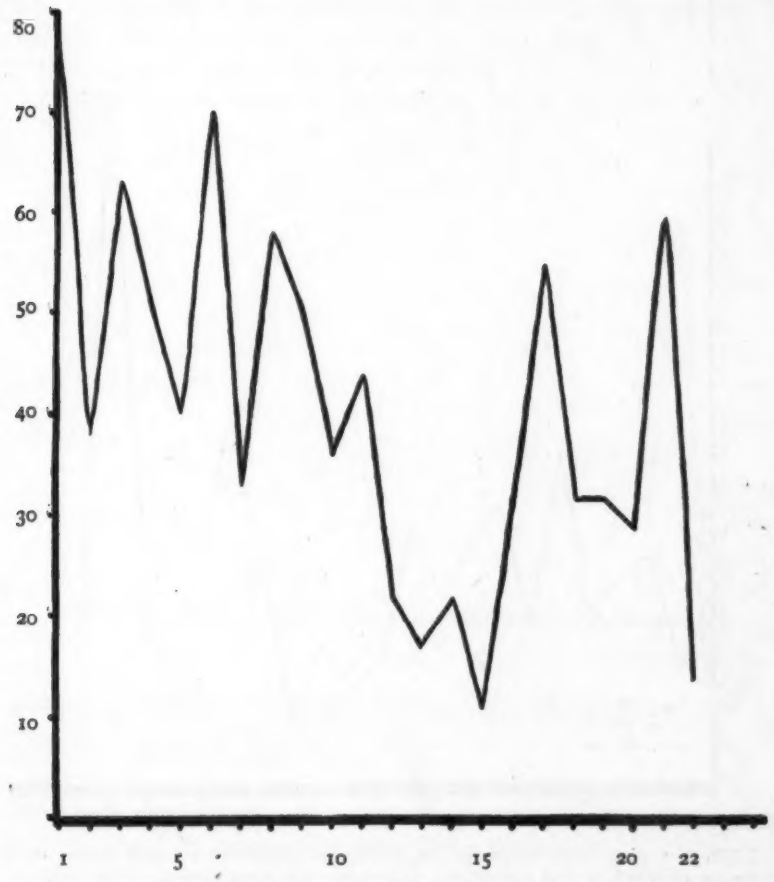

FIG. 2—Curve representing comprehension of the same children as in Fig. 1 and in the same order. The scale at the left shows the comprehension.

considerably below the average of the class, four of whom fall conspicuously low and can easily be identified in Fig. 2. They need special practice in rapid silent reading with special emphasis upon

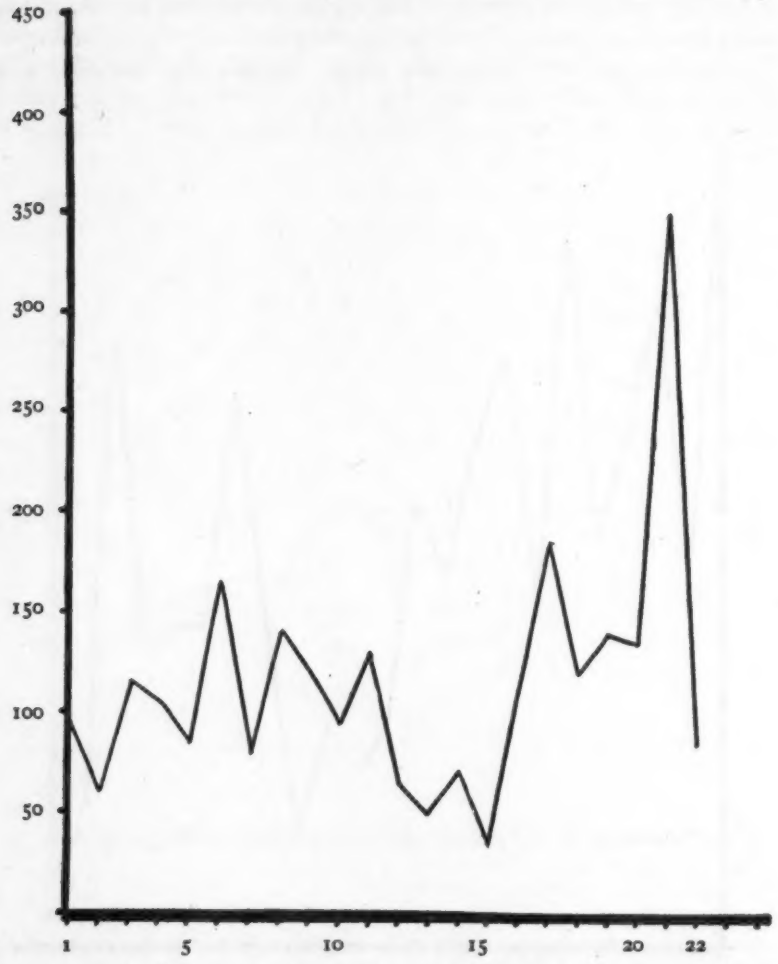

FIG. 3—Curve representing the reading efficiency of the same children as in Figs. 1 and 2, and arranged in the same order. The scale at the left shows the reading efficiency.

getting a maximum of content from what is read. The four who get the lowest marks in comprehension are seen in Fig. 3 to have a very low score for reading efficiency.

We may now examine a number of individual cases. It is easy to see that Pupil No. 1 is deficient in the rate at which he can

read. He gets a relatively large proportion of the content at his present rate of reading but he reads so little in a unit of time that his efficiency is low. He should have practice to increase his speed, and if it is found that at a higher rate of reading his comprehension is poor he should be given practice for the purpose of bringing about improvement along this line, also. Pupil No. 2 has a difficulty which is easy to diagnose. In the first place his rate of reading is not sufficiently rapid, but on quantity of repro-

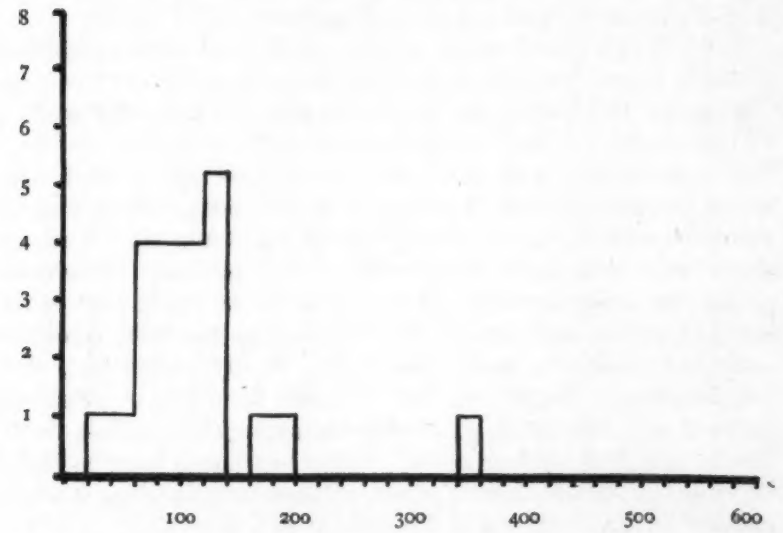

FIG. 4—Surface of frequency showing the distribution of reading efficiency in the same third grade. The scale along the base of the figure represents the reading efficiency. The scale at the left shows the number of children in each group.

duction he stands high. His mark for quality, on the other hand, falls to zero. In other words, he gets a good many ideas in the rough, but gets nothing accurately. What he gets is a mere smattering of the idea. His low mark for comprehension, together with his low rate of reading, gives him a low efficiency. He needs to work both for speed and for accuracy. Pupil No. 4 reads at a rate considerably below the average. He gets in a rather rough way a very large percentage of the ideas, but he is very inaccurate. He merely skims what he reads. He is in need of the same treatment

as Pupil No. 2. The same difficulty exists in the case of Pupil No. 8. Pupil No. 13 reads reasonably rapidly but remembers little of what he reads, and gets nothing absolutely correctly. The same is true of Pupil No. 15. An interesting comparison may be made in the case of Pupils No. 21 and No. 22. Both read with great rapidity. Pupil No. 21 remembers a large amount of what he reads and remembers it accurately. On account of this and his high rate of reading he stands the highest in the class in efficiency. Just the reverse is true of Pupil No. 22. While he covers a great deal of ground, he gets almost nothing out of it.

A pupil like No. 21 is so superior to the rest of the class that probably he profits little or nothing from the daily routine reading lesson. Such children should be removed from the reading class at once, for they need no more drill in reading as such. The ordinary daily exercises in oral reading, as usually conducted, would amount for such pupils to daily practice in slowing down their rate of reading. Probably Pupils No. 6 and No. 17 cannot receive maximum profit from reading with this class. These three pupils can easily be identified in Fig. 4 on the upper part of the scale, above the majority of the class, and by the three conspicuously high points in the curve in Fig. 3. It is doubtful, also, whether Pupils No. 13 and No. 15 belong in this class. Reading material and instruction adapted to the average of the class would hardly be suited to their needs. These two pupils may be easily identified in the two lowest points of the curves in Figs. 2 and 3 and also on the lower end of the scale in Fig. 4.

An examination of Fig. 4 reveals, on the whole, a very satisfactory condition. With the exception of five pupils, No. 6, No. 17, and No. 21, on the upper side of the scale, and Nos. 13 and 15, on the lower, the group is homogeneous and compact, which is a favorable condition for teaching. While four of these five pupils would undoubtedly do better in a class more nearly of their own ability, yet they do not differ so seriously from the average of the class as to fail entirely to profit from the instruction.

This is intended to illustrate the method by which individual pupils may be selected and their particular deficiencies studied. It is not intended to be an exhaustive study of the class. There is no doubt that by a study of the scores of the different individual pupils in the various elements of reading ability and the applica-

tion of the proper remedial measures in each case, the total efficiency of the class could be raised very much higher than it is at the present time.

For purposes of comparison I wish to present now the data from another school which represents conditions, which in many respects are undesirable, and, had the proper measures for remedying the various defects been applied, the present deficiencies would not prevail to the extent to which they are found. Figs. 5, 6, 7, and 8 show the essential facts. We see a great difference in the rate of reading. In both cases there is a wide range, but in the case of the second school the rate is very low throughout, while in the other it is high. It is entirely clear that a majority of the pupils in this school need a great deal more special drill for the purpose of raising the rate of reading. Note how the schools compare in comprehension. While there is a somewhat wide variation in the first school, the individual differences in this respect in the second are extremely marked. This school represents a condition which should never be allowed to exist and which makes it impossible to secure the best results from the instruction. An examination of the reading efficiencies in the case of the two schools, reveals a very unsatisfactory efficiency in the case of the second. In fact, the low standing of the pupils in rate of reading and comprehension inevitably leads to a low general efficiency.

I wish now to speak of some defects which are found as the results of reading tests, and I shall confine my attention to three of these. They may be classified under the following heads: (1) Great range of abilities within a single class; (2) poor grading; (3) neglect of the superior child.

It is interesting to compare the distributions of reading efficiency in various schools. Compare the two grades represented in Figs. 4 and 8. The former represents a much more satisfactory distribution than the latter. In Fig. 8 the wide variation and the very unsatisfactory distribution is evident. Note that there are three distinct groups of pupils representing widely different abilities. The following is a statement of the true facts concerning the grade represented in Fig. 8. There are six pupils in the class who are totally unable to read. The best reader in the grade is nearly thirty-eight times as efficient as the poorest.

The five best readers are about sixteen times as competent as the five poorest. The twenty best readers have about nine and one half times as great reading ability as the twenty who have the least reading power. The most rapid reader reads about sixteen times as fast as the slowest. The ten most rapid readers read over five and one half times as fast as the ten slowest. There are

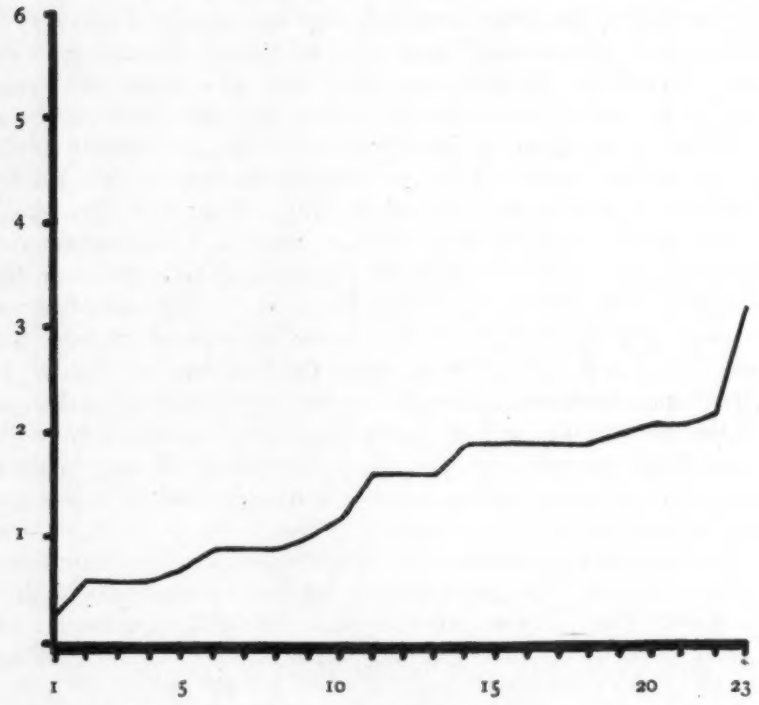

FIG. 5—Curve representing the rate of reading in a third grade. The papers were arranged in order of rate of reading.

six pupils in the class who failed entirely in comprehension. The best pupil in the grade in comprehension is nearly ten times as competent as the poorest. The ten pupils who are best in comprehension have over four and one-half times as much ability in this direction as the ten who have the least ability.

Think of competing with a person thirty-eight times as efficient as you are in any kind of work! Similar facts are true of nearly

every grade thus far tested! What does it mean? Just this: that graded schools are not graded. With such facts before us we can

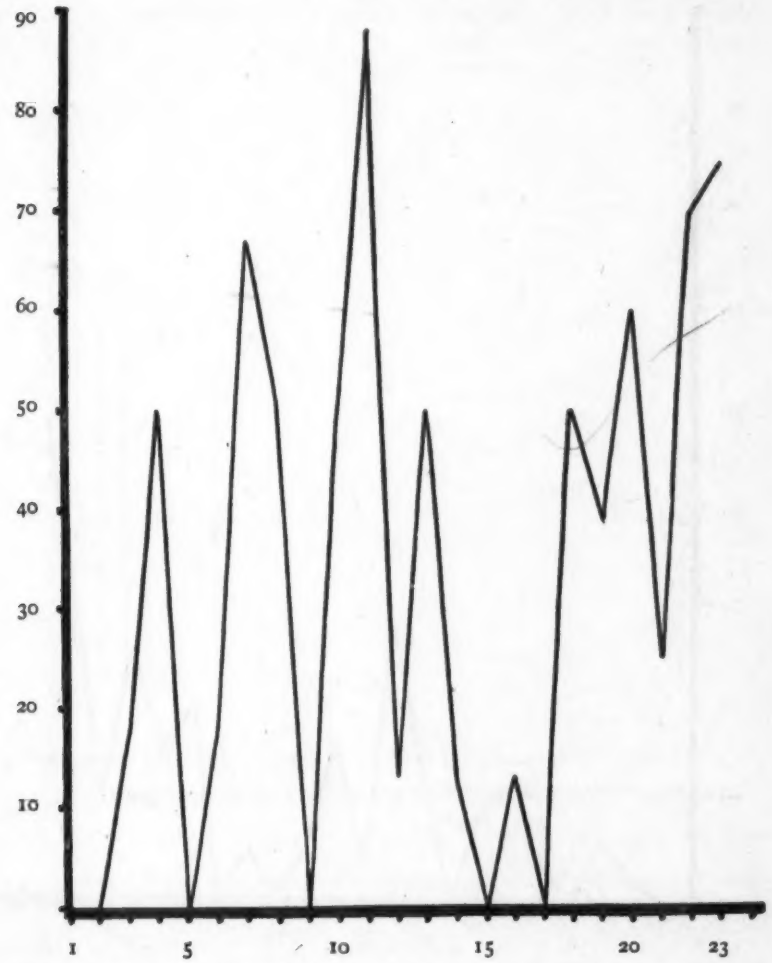

FIG. 6—Curve representing comprehension in the case of the same children as in Fig. 5. Note the extreme variation in ability in the case of these children.

but ask, Is our modern graded school system a success or a failure? Surely it is not a complete failure. This condition of

which I am speaking is due largely to poor supervision. By the use of adequate reading tests the particular deficiencies of the

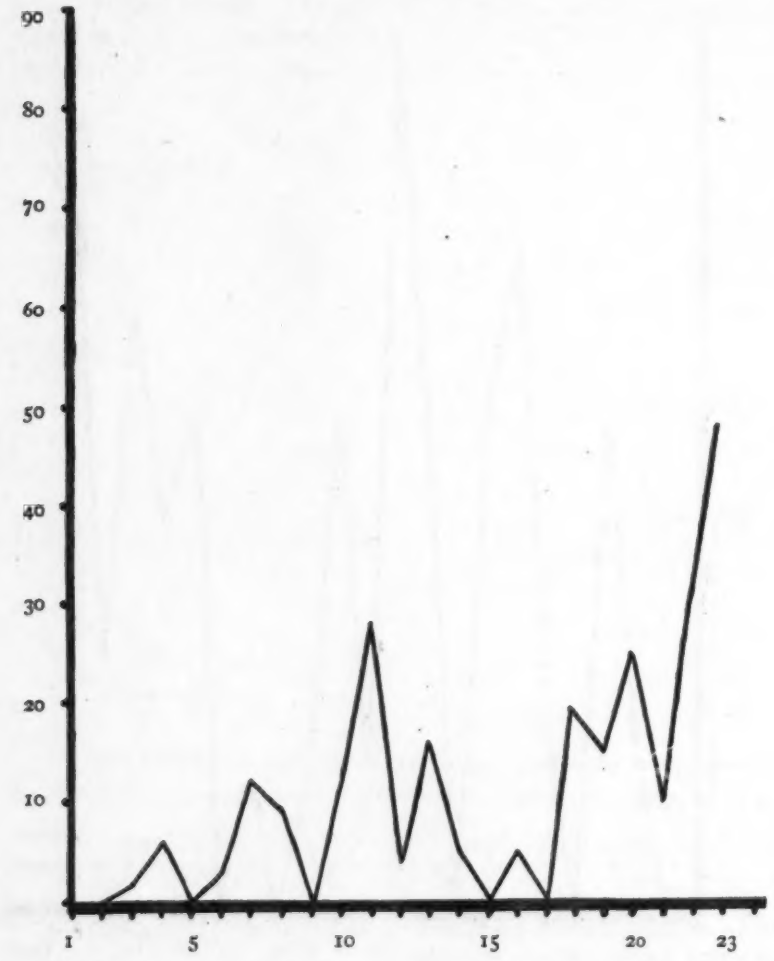

FIG. 7—Curve representing the reading efficiency of the same children as in Figs 5 and 6. Note the low reading efficiency of these children.

poorer pupils in this grade could have been discovered and removed by proper remedial instruction. By the same tests the

ability of the better pupils would have been discovered and they would have been promoted to a higher grade. The result would have been a class which was a compact and homogeneous group, such that instruction could easily be adapted to it as a whole. As it stands now this is entirely impossible. An attempt to teach

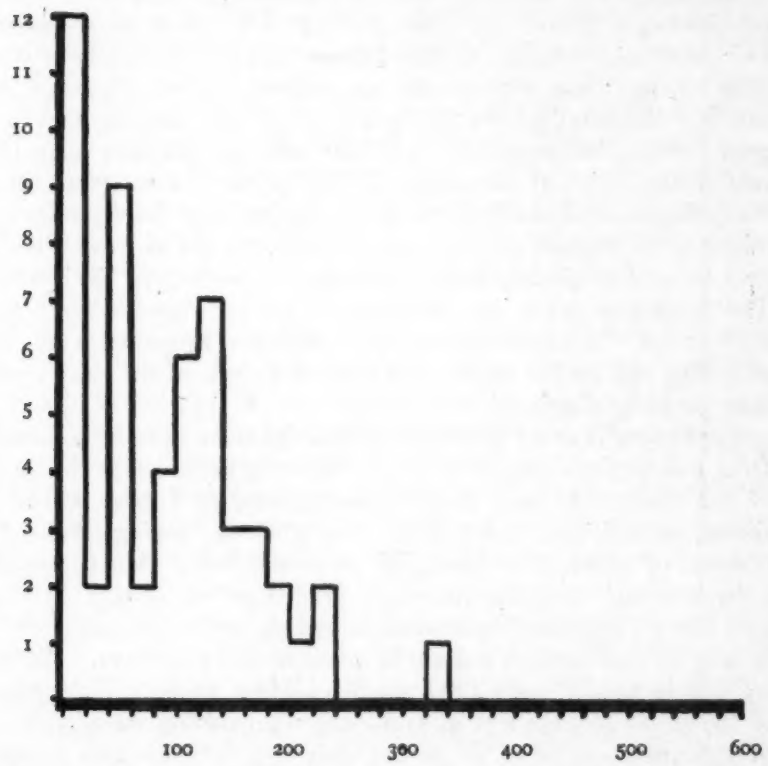

FIG. 8—Surface of frequency representing the distribution of reading efficiency in a fourth grade. This represents an extremely bad condition. Note the three modes and the large number of pupils in the lowest group.

this grade as a whole as it now stands would be like having a class made up by selecting a few pupils from each grade from the second or third up through to the eighth. The pupils of this grade do actually represent all degrees of reading ability found in the various grades of the elementary school. *The reading*

efficiency of the best pupil in this fourth grade is higher than the grade average of the best eighth grade thus far found in the state! It is as good as the average of many high school classes, yet he is required to remain in the class and take his part in the daily reading lesson which is of fourth grade difficulty.

As regards the matter of grading I may say, that at least four conditions are found. (1) The grading of the class may be good and the efficiency high. By this I mean that the variability of the class is small and the average or median reading efficiency is equal to the standard for the grade. (2) The grading may be good but the efficiency low. (3) The average efficiency may be reasonably high but the range of ability may be so great that every degree of efficiency from the lowest grade of the elementary school to the highest may be found in a single grade. (4) There may be several distinct groups as regards efficiency in the grade. The frequency graph representing the grade is then said to be multimodal. These defects can all be remedied by proper methods of testing and proper supervision after the needs of the class have been properly diagnosed.

In practically every grade tested thus far there have been found from one to three pupils who are distinctly superior to the rest of the grade. It is a frequent occurrence, as I have already shown, to find, in a third grade, pupils whose reading efficiency is equal or superior to the eighth grade standard. I once heard a lecturer say that the American graded school system of the past was an organized institution to reduce genius to mediocrity. It may be that there is a grain of truth in this statement. When we find in nearly every third grade, children whose visual grasp of the printed symbols is so rapid and efficient and whose power of interpretation is so great that they are in a marked degree superior to their classmates, what do we do with such pupils? Ordinarily we hold them in the grade. We keep them going through the monotonous routine of the oral reading lesson day after day. Oral reading is usually about half as rapid as silent reading. In other words, then, we are giving these brilliant pupils daily practice in reducing their reading efficiency. This half-speed practice which they get daily can never develop maximum efficiency. As ordinarily conducted it can but result in rendering the child's reading more slow and ponderous. Children

of this kind who have such superior ability in rapid silent reading need no more class drill in oral reading and should be excused from the reading class.

The study of the reading problem which has been going on for the last ten years and more has yielded a body of scientific information which suggests important modifications in the methods of teaching reading which have prevailed in the past. I shall state and comment briefly upon a few of the most important of these.

1. *There should be no formal oral reading lessons as such after the third grade.* By the end of this grade the so-called mechanics of reading, which means teaching to read, should be completed and the pupils should be able to read any selection which is not of a technical character the content of which is within their comprehension. Experience abundantly indicates that this can be done.

2. *Since silent reading is of so much greater social value than oral reading it should receive the predominant emphasis.* In the earliest grades frequent exercises in rapid silent reading should take the place of much of the common oral drill in reading. Speed contests are valuable. In a recent exercise of this kind which I witnessed, the teacher, commencing at the beginning of the story, asked rapid-fire questions about the content of the lesson in the order of the printed account, and as she asked her questions the pupils read silently. When a page or two had been covered in this manner, the books were quickly closed and one or more pupils were asked to reproduce the thought, after which the reading was resumed. According to this method, in the case of a paragraph which would cover a third of a page, the teacher would ask perhaps three or four questions in the order of the ideas of the paragraph, the answers to which would be the essential ideas of the paragraph. The pupils made no oral response during the reading but read very rapidly and silently to get the thought conveyed by the printed symbols. Each question was asked just before the pupils reached the point at which the printed discourse would contain the facts or statements which would give them the answer. While their eyes were running rapidly over this taking in the thought, another question would be asked which kept the process of silent thought-acquisition forging ahead rapidly. There

was no time for attention to minute textual details. Pages and pages were covered in this manner in this lesson, which was sight reading. The reproductions were detailed and accurate. The ideas of the children were well organized and the reproductions served as most excellent oral English. This was ideal teaching of reading. This teacher was training her pupils in an accomplishment of great social value and one which is all too rare,—the ability to interpret the printed page rapidly and silently, to remember well what is read and to reproduce it in good, correct English and with the ideas in coherent, well-organized form.

3. *Above the third grade, teaching to read should consist of teaching to study.* In all grades above the third the pupils will do a great deal of silent reading in the extensive reading necessary in the study of history, geography, nature, literature and the other subjects of the curriculum. There should be frequent periods when teacher and pupils study the lesson together. The object of the teacher here is to teach the pupils how to study. The method will sometimes be somewhat like that of the silent reading lessons previously described. The aim of the teacher should be to teach the pupils to interpret the printed page rapidly, to select the essential from the mass of details, to organize facts in coherent form and to give them back to the class in clear, correct, fluent, logical, convincing oral discourse. Frequently a whole lesson in history or geography, which has never been previously read by the pupils, will be gone through rapidly in silent study by teacher and pupils working together, after which the pupils will be required to stand upon their feet immediately and reproduce or discuss portions of it. The pupils will thus get the best of practice in silent reading, in organizing and presenting facts, in a word, in learning to study.

4. *Whatever oral reading there is above the third grade should be in connection with other studies.* It will often happen in various subjects that individual pupils will be assigned special topics upon which to secure information, to be reported to the rest of the class. Here is one of the opportunities for proper oral reading. The pupil has something which he desires to convey to the others. He now has a motive for reading well in order that he may interest the class and that they may get his message. There are abundant opportunities for this kind of reading in

school. A pupil may have a book at home which contains something which will interest the geography class. Another may have a letter from a friend in a distant part of the country or a foreign country which, if read when that topic is being studied in class, would have great value. Current events and newspaper clippings afford a valuable source for this kind of oral reading. Suffice it to say that the resourceful teacher will have no difficulty in finding plenty of material for properly motivated, rational, oral reading in school.

5. *There should be a great deal of spontaneous silent reading in school.* The teacher's greatest opportunity presents itself in the proper conduct of silent reading. There should be available in the schoolroom single copies of as many books as possible for the children to read in their spare time. These books may deal with a wide variety of content. It is desirable that much of the content should be informational in character,—geography, history, nature and other similar subjects. If a given class consists of twenty pupils and one set consisting of twenty different books is purchased, each child will have twenty books to read. If the equivalent of two or three sets in single copies can be bought, an abundance of reading will be provided.

Our State program of studies contains this advice which I believe is fundamental. Let me give it to you in the exact words of the program. "Accumulate a school library. Bring in, and encourage the pupils to bring in, good books, newspapers and magazines from home. If there is a public library in town, do not fail to utilize it to the utmost for the re-enforcement of the school. Take out a school card and keep in the schoolroom a constant supply of good children's books. Keep all of this material where it can be served out to the children for silent reading at times when they would otherwise be idle. Occasionally allow two or three pupils to read to the class for a whole period out of a selection from this silent reading material."[1] The great problem in teaching reading is to get the children early in the school course to *want to read.* When a child reaches the point that he regularly and frequently takes books home to read in his spare time his problem of learning to read is settled. If he has not already acquired the ability to do so he will ordinarily acquire it for himself.

[1] Program of Studies for the Elementary Schools of New Hampshire, Third Edition, 1916, p. 31.

6. *There is a great deal of uneconomical drill in connection with the teaching of primary reading.* The newer methods of teaching reading have all been constructed on more modern principles than those of an earlier day and are much less wasteful of time and energy. I find in many cases, however, that teachers are prone to carry formal abstract drill on elements of words to excess, often even giving four or five times the amount of such drill called for in the printed manual, if one of the standard reading systems is being used. The principle of diminishing returns comes in and much time is wasted. In an age when the teaching process is being subjected to the most searching inquiry to find lost time and lost motion, the teacher must carefully consider her own method and find the best kind and the optimum amount of drill in such a subject as reading.

Our practice in New Hampshire in connection with this problem may be of interest to you. I will describe briefly the directions in connection with word development and word drill as they are given for the first and second grades in our State program.[1]

By the use of pictures, objects and conversation, the teacher leads the children to make an effective association between the object, idea or experience and the word which is its symbol. She causes them to use the word freely in conversation in sentences of their own. Finally, the visual form is associated with the auditory form and with the object, idea or experience for which it stands. This can usually most satisfactorily be done by writing the word on the board in a short sentence when attention is at its best. Proper word development is of the greatest importance in the early stages of reading. If the association between the visual form and the idea is faintly made, the visual form will recall the idea faintly or not at all and, as a result, the child will not learn to read so far as that word is concerned. The mere ability to react with the verbal expression when the visual form is presented is not reading.

When the class begins reading rather extensively from books it will not be necessary to develop all new words previous to reading. When an unfamiliar word occurs, the teacher may pronounce it for the child who is reading as he reaches it. The child should pronounce after her and the reading should continue without fur-

[1] The four paragraphs which follow are given about in the words of the Program of Studies for the Elementary Schools of New Hampshire, Third Edition, 1916, pp. 22-39.

ther interruption. But common words, about the real understanding of which by some or all of the children the teacher is in doubt, should be developed either before or after the class. Most new words at this stage may be placed upon the board, as they occur, for the purpose of giving, after the class, two or three minutes' practice in pronouncing them as unanalysed wholes, daily. Children thus catch the knack of pronouncing words by practice in pronouncing them, with little instruction by the teacher. Experience shows that children normally work out the most of their phonetics in this manner. They learn meanings of words by meeting them again and again in a familiar content.

It is essential that children be trained early to grasp words and group of words as wholes. Rate of reading, which is an important factor in efficient reading, depends very largely upon the ability to read word groups in this way. To this end, drill may be given by quick perception devices on words and word groups which are of frequent occurrence. This drill should be rapid and the period very brief. Quick perception means practically instantaneous perception and anything short of this is valueless as drill. The technique of the drill should be such that the card,—if perception cards are used,—is raised to the proper position for perception and then lowered, in a manner which will involve an exposure just sufficient for a glance with the card at complete rest.

In the third grade the word development exercises of the first two years take the form of practice in the visual analysis of words. It is well at the close of each reading lesson in this grade at first, for the teacher to place upon the board all the more difficult words of the day's lesson in syllabic form. She should then take the words, one at a time, pronounce them slowly, clearly and distinctly, and have the pupils pronounce after her in the same manner. After the words have been gone over several times in this manner, the teacher may point rapidly to the different words and have them pronounced quickly by the pupils. After about two weeks of this kind of work, the teacher may begin to give the children themselves practice in dividing words into syllables. Practice may be given in quickly glancing at words on the board, followed by syllabication and pronunciation. Children should be encouraged to pronounce unfamiliar words at sight as they occur in the reading. By the end of two months and a half, the chil-

dren should be able to syllabicate and pronounce any ordinary word met in their reading. Not over four or five minutes daily should be devoted to these exercises in visual analysis but the teacher should persevere until her class is able to syllabicate and pronounce any word which they meet, which is phonetically spelled, whether they know the meaning of the word or not.

We should have definite purposes in teaching reading, and, having formulated our aims, we should persevere until we have accomplished the results which we are seeking. In closing I wish to state the aims which I believe should dominate our teaching in this subject. (1) Teaching to read should mean teaching to read silently, i. e., teaching to study efficiently. (2) Instruction at every step should be carefully adapted to the scientifically determined needs of individual pupils. (3) The teaching of reading should have for its aim to lead the child into an acquaintanceship with the world's best literature. This process should begin with the primer. There should be a continuous course in literature from the first reader through the child's entire school career which should result in a reading habit, a love for the best and a genuine literary appreciation.

Military Training in the High School

STENOGRAPHIC NOTES OF THE ADDRESS OF HON. DAVID SNEDDEN, COMMISSIONER OF EDUCATION, MASSACHUSETTS, BEFORE THE BROWN UNIVERSITY TEACHERS ASSOCIATION.

WHEN the Legislature of Massachusetts met in session in January, 1915, the great European War had been in progress several months, and a large number of bills were submitted to the Legislature along the general line of looking toward preparedness and reorganization in the state, providing for compulsory military training in high schools, and growing out of the panic of the times and the consciousness of America's somewhat marked indifference to military education. The Legislature solved the problems dealing with these numerous bills by referring them to a Commission, with directions to study and report at the next Legislature. It happened that that Commission, because it had a good many questions pertaining to education to consider, called at my office for a good deal of consultation. I went before the Commission and we discussed at considerable length and in some detail a variety of proposals and recommendations that the Commission had under consideration. The Commission made a report and submitted it to the Legislature in 1916, with most of the conclusions of which report I am in substantial accord. One of the members was a man very well known to you, President Meiklejohn of Amherst College, and there was one other college president on the Commission, two or three men of military experience and training, one colonel and one general, and two or three very active business men in Massachusetts. And that Commission, in view of the varieties of expert opinions presented to it by officers of the United States army and others, canvassed the ground pretty well. Now I shall not attempt to review their findings, but I shall confine myself this afternoon to a discussion chiefly of the problem of military training in the high school. I shall try to treat the subject dispassionately. I shall reach certain conclusions as regards

military training in high schools, which are my own conclusions, but I would like to assure you in advance that not in any single instance is it my intention to pass on the general question of desirability or undesirability of preparedness. That, it would seem to me, is not under discussion this afternoon, and I shall be greatly obliged if you will not attempt to make any inference regarding my own opinion. I have none that is at all adequately thought out. But I want to work out this question of military training on the assumption that we do want a good deal more military training than we actually have in this country, because of course that is the kind of question that confronted the commission. The commission was practically asked to deal with the question, Suppose we were to be at some time in the future attacked by a very powerful enemy, what steps should we now take to get ready so that we could adequately defend ourselves? How should that preparation be given? By the building up of a great standing army, strong military training above the school age, or at the school age? What can we do?

I want to discuss the question of military training in the high schools from two different standpoints. First from the standpoint of its possible direct results, that is, military training for the purpose of producing stronger and more capable defenders of the country in the strict military sense of the word; also from the standpoint of its indirect results,—a training that would be good for citizenship, making better citizens, better able to take care of themselves, teaching them obedience, patriotism and interest in their country. These would be indirect results, because military training in the ordinary acceptance is training for military activities.

Now the first question that confronted the Commission naturally was, What is possible in our high schools as now organized, in the way of military training? Of course there are a variety of possibilities of such training. We are familiar with schools that have a good deal of compulsory drill, we are familiar with schools that have their pupils attain to a fair degree of efficiency in the manual of arms, and we are also familiar with some private schools which not only are training their pupils in these things to a considerable degree, but giving practice in horseback riding of a military nature.

We could teach them to wear uniforms, we could teach them to march, to drill, to respond to a variety of commands that are more or less familiar to us in the historic military drill practice. None of us would say that it is practicable or feasible for us at the present time to have anything equivalent to prolonged field service. We have not, in the first place, authority to make such training compulsory; we have not the staff that could take care of this compulsory training. But the other sort of thing, the thing that could be carried on, in drill hall and on the parade ground, is target practice, even under some conditions with service rifles—this would be more or less feasible and practicable.

Then the next question that confronted the Commission was how much that sort of training has significant value in the military sense of the word; and that was where, I think, our Commission came face to face with some of the most remarkable conditions—substantially this; that there is very little today of that kind of training that has any functional significance in modern war as now waged. In other words, very little of what we term military drill exercises, from the standpoint of direct training actually functions, and any one who has given much consideration to war as now waged, particularly as waged on the battlefields of Europe, must reach that conclusion. Take, for example, marching, with which we are all so familiar. Now anywhere near the battle front today this is absolutely useless because modern warfare does not favor it. Anywhere near the front people have got to go around in ways vastly different from what is historically possible. Most of the movement near the battle front is done by night and not by day, because of the watchful eye of the aeroplanes, keeping watch of every movement by day, and only at night is it possible to make movements toward the front that are safe or effective. Take another thing—the matter of orders. They are given by whistles and signals, just as you see in the case of a foreman of a great building; and there are orders that are whispered along from man to man. But that beautiful way of shouting out orders is a thing of the past. Even the distinct uniform of the officer has to be abandoned. Probably the French lost thirty thousand lives in the early stage of this war owing to the fact that the soldiers were wearing red trousers,—and they have given them up. I won't attempt to enumerate a lot of statistics, but I think if we

go over the ground of the older military training, as we have known it, we find that a great deal of it is obsolete and probably in some respects even might be an impediment. The ability to use a rifle is not only necessary today for the soldier, but fine marksmanship also. Great skill in using the rifle and the ability to stand up under prolonged shooting of the rifle, hour after hour for twelve hours, perhaps, on the stretch, while the whole body aches with the kick of it,—this drill would make all the difference in the world.

Beyond the matter of the rifle practice I do not believe the commission found that there was much in so-called military drill that in any sense was an asset in modern war. I do not see why we should not train boys of twelve years of age with the rifle. Boys of twelve are plastic. At least let the boy start trying to hit a mark with a rifle and then as he goes along teach him how to clean his rifle and take care of it.

Now I must stop a moment because I know that a good many of us are bound to be thinking of what have so often been alleged to be the indirect results of military training. There are a great many of the excellent citizens of America today who are defending military training in our schools because they say it will teach a boy to obey orders, to have self-respect, to care for his country, to be a good citizen and more physically sound. These arguments demand a great deal of respectful consideration from you and me because in the last analysis they rest on exactly the same ground that most of the work we are doing in the American high schools rests upon. Most of it rests on the same fundamental nineteenth century educational illusion that underlies most of the American high schools today,—the transmitting of educational values. You and I have been arguing for a long time that when we have drilled a boy in Algebra or Latin, the mental training can be carried over into other fields. The transmitting of values, the carrying over of values into these other fields—I have been for a great many years engaged in studying that question. I am prepared to describe that old theory of education as being today the most fundamental and greatest of the illusions of education. Let me illustrate a little. The business man says "Teach the boy military drill because it will teach him to obey orders." Now does it or does it not? Yes, military drill does teach the boy to obey orders

—some orders, but not only does it not teach him to obey other kinds of orders, but it actually forms an impediment to his obeying other kinds of orders. We are all familiar, of course, with the story in our old reading books when we were children, of the man who was carrying home his dinner in his hands when someone called "Attention!", and he dropped it into the gutter. If someone had said "Horsechestnuts!" would the man have stood at attention? It had been incorporated into his nervous system so that he could not forget it. You can train a person in algebra so that he knows more algebra and *more* algebra and MORE algebra, but it does not follow that that process gives a set of habits or ideals that you can carry over into other unrelated fields any more than that the soldier with his ready obedience to certain orders will be obedient and responsive under a new situation.

In addition to the rifle practice, what else can be done in the high schools that will prove an asset in time of stress? It seems to me that the one big thing we can do in our American high schools is to develop a program of physical education. For the sake of our national reputation, for the sake of our parenthood, for the sake of our capacity of enjoying leisure, for the sake of our capacity to live long lives of usefulness it is fully as important, if not a great deal more important than its function as a basis for military exigency. The one thing that does stand out in all our recent experience in military matters is that waging war imposes the greatest tax on every form of physical competency that a man can possess,—obedience, endurance, the ability to run and to run hard, the ability to climb a tree, the ability to crouch, to lie down—all these forms of physical capacity that date back to primitive man. All these things are called for today, perhaps as never befor, for successful war.

Our women today are nervous, without muscular development, without the capacity to rear many children, or to endure hard work. They are physically at a discount. Our men are not much better. I think we are going in the same direction. Of all the foolish things that doctors could do is this,—to sanction physical training in gymnasiums. If there is a place where people should have physical training, it should be out of doors. We do not need any apparatus for it. We do not need any particular equipment. A good deal of that running and walking should be done in the

dark. How many of the people here could find their way around in the dark in the middle of the night? That is the thing our soldiers must do. Try to begin that thing when you are twenty-five or thirty years of age and you will never acquire it. I would not be advocating these things if I did not believe that they would make for better parenthood of the future, a capacity for enjoying leisure, and ability to see the world in which we live in a new light,—if I did not believe it was just as essential as for that possible day of national need.

In view of the existing uncertainty as to the scope and character of desirable military training, it is suggested that special attention should be given to the following possibilities: (a) The provision under adequate direction of a broader program of physical development of a simpler and more rugged character than is now found in our urban schools; (b) the widespread fostering of small-calibre rifle practice as an accomplishment among school boys from 12 to 16 years of age; (c) the promotion at state expense of summer camps with much physical, and some military, training, which, taking boys at school age—preferably sixteen to eighteen—might be continued into young manhood, at first on a voluntary, and if feasible, later on a compulsory basis for all.

A program of simple and robust physical development, organized and carried out by trained leaders, and designed especially to reach all city boys from twelve to eighteen years of age, ought to be a possibility. The elements of it are now available. The longer school day—seven or eight hours, to include at least two hours for physical development—is now found in some private schools and several public school systems.

Athletics must be so adjusted as to give scope to all who will participate, and obligatory forms should be devised for the minority who will not volunteer. Gymnasiums should be limited to corrective work and dancing, or be dispensed with. The program of school studies should be made sufficiently flexible to permit of extensive excursions, meets, trips to swimming places, etc. Swimming, like other activities, should be carried on out of doors. "Hikes" in stormy weather should be arranged, care being taken to insure suitable clothing, and a rubdown and change at the end. Parks, avenues and country roads should be used no less than playgrounds. Indoor quarters, apparatus and equipment should

be reduced to the minimum. The one indispensable provision should be private space for changing clothes and rubbing down. The shower is probably a needless luxury. The indoor plunge should give way to the pond in the outskirts of the community—a plan which is feasible except in largest cities. Every effort should be made to encourage exposure to all sorts of weather and adaptability to varied conditions—the ideals and powers of endurance connected therewith certainly being assets for war as now waged. It is necessary to repeat that paraphernalia and trappings for this program must be reduced to the minimum or the program cannot succeed.

But enlightened and skilled direction is indispensable. In a city of medium size a man worthy of a salary of five thousand dollars should be in charge—a deputy superintendent of schools. But the program, as a whole, does not contemplate large financial outlay for service, because the greater part of the direction of groups should be under unpaid lieutenants from the schools themselves, detailed for short periods of responsible leadership—the best possible initial training for the officers of the future. Nowhere have we begun to realize the possibilities of this unpaid service. Out of a city on an afternoon or evening—and ability to travel in the dark is now surely an asset for the soldier—it ought to be possible to send hundreds of hiking parties of younger boys under charge of responsible high school upper classmen detailed for this purpose and getting their several kinds of training thereby. Games, contests, swimming, rifle practice, etc., should all be thus conducted. Under scientific direction from the center, such a program ought not to be costly as regards personal service.

American Notes—Editorial

One of the most serious problems of schooling and one that is always with us, is how to prevent premature graduation. Children leave school for various reasons. Sometimes it is because of poor health,—which might in many instances have been prevented by proper diet, medical inspection or treatment under the direction of the parents or the school authorities. Happily, the schools are now quite generally awakened to their responsibility in this respect and medical inspection and prescription is noticeably reducing the elimination of pupils on this account. Another active cause is found in the pressure of poverty. The family needs are imperative and the means for supplying them limited. The boy of ten or twelve or fourteen if relieved from school duties can become a producer as well as a consumer and this thought is driven home daily and hourly in the minds of the child's father and mother, and the desire, so natural and so valuable, to take an active part in sharing the responsibilities of life makes its strong appeal to the boy himself. Perhaps he secures a paper-route, or a job on a grocery team and with the receipt of his first week's wages his career as a student is doomed. His ambition is aroused. Practical and immediate results appeal to him. He is not old enough to reason the matter through and estimate the remote consequences. The present is all absorbing.

Statistics have been repeatedly gathered, showing the number of pupils leaving school before completing the course in this city or that state; and many different causes have been assigned for the regretably large percentage of loss, especially at the end of the eighth grade, and all along through the high school course. Various remedies have been suggested. Some of these are partially effective. All of them are worth while, even if each prevents only a little of this loss.

But after all is said, the best preventives and the ones most likely to be successful are home influence and good teaching. By home influence we mean the deliberate and conscientious effort on the part of the parents to keep the ideals of a true education before the minds of the children, and the co-operation of the home with the school. Wise parents will never speak slightingly or derogatorily of the school or the teachers. They will not lightly excuse their children from attendance on a given day and for slight cause. They will not plan an excursion or a visit to a neighboring city and set it before their children as a reward of merit that they will be given a holiday for this purpose for "just this one day." The parents who are wise will see that their children are regular and punctual in their observance of study hours and thus the child will form habits that will

make his work successful and encourage him with the feeling that he is making progress and doing something that is worth while. This will satisfy in large measure the craving which every normal boy feels for achievement, and it will direct his energies into proper channels and hold him on his course of true preparation for real life. With these home influences behind him the child's scholastic career is assured if it is not wrecked upon the shoals of poor teaching. The live, earnest, sympathetic teacher is a most important factor in the prevention of premature graduation. With a listless, indifferent, unjust, arbitrary or unsympathetic teacher in the classroom many a pupil becomes disheartened and disgusted. Going to school loses its interest. Though it may still be to him a duty, his heart is not in it and he escapes with a sense of relief to the playground or the street and longs to be free. We can scarcely blame him.

Anything that secures the child's real interest in his school life and duties makes for permanency and scholarship and success. Whatever kills interest drives the boy into the street, or into business or into mischief. And the state as well as the boy is the loser.

There is no better example of a purely democratic institution than the American common school. Here meet in daily familiar intercourse the rich and the poor, the bright and the stupid, the strong and the weak, the sleek and the ragged. They sit together in one room, play on the same playground, fraternize and fight with one another, and one set of rules applies to all; they are equal before the law in every respect. They are the common beneficiaries of the State, which has been established itself upon the foundation of "government of the people, by the people and for the people," and which recognizes the fact that a chain is no stronger than the weakest of its links. Therefore it must educate all its coming citizens and each must be treated as an essential unit in the body politic as a whole.

In handling the educational proposition, however, a sort of autocracy has necessarily come in. The development of educational thought has been rapid and the establishment of Universities and Schools of Pedagogy has led to the formation of a class of experts whose thinking and whose executive attainments have prepared them for leadership and domination in school affairs. The days have forever passed in which the conduct of the school or schools in a community can safely be left to the judgment of the annual church or town "meetin." The citizens as a whole are no longer qualified to determine exclusively, educational policies. This has become an "expert" job. The State must approve, after careful examination, a Superintendent, who has spent years in special study and training and who is certified by the state as capable of guiding these important interests which are thus made the State's concern and not

simply the concern of the particular town or the individual citizens thereof.

Here then, is a delicate situation,—a meeting place of two great ideas,—a democratic and an aristocratic principle coming to a point of contact. Shall it be a collision and an explosion, or a fusion? This is a most important question. In one case we have a disaster; in the other the hope and assurance of improvement and progress. The collision means destruction. The fusion, life and growth.

This matter is very real and practical in the school affairs of many a community. The Superintendent has been chosen and he is made the responsible head of the school system. His training has fitted him to see farther and more clearly than the majority of his fellow citizens. He has certain policies which he expects to work out into certain beneficial results for the schools of the city or town. These policies require time and patience. It is hard to explain them to the uninitiated; and they may involve immediate changes in the established order of things, which changes do not at the time appear wise or acceptable to many of the citizens. What shall be done? In many cases the matter is dragged into the "town meeting" or other public forum, and committees are appointed to "investigate"; or worse still, utterly irresponsible persons rush into print with bitter criticisms and denunciations and demand the resignation or discharge of the Superintendent. It is the contact of democracy with autocracy.

What should be done? Manifestly, as in all disputes and differences, each side should strive to get the other side's viewpoint and be willing to make a patient effort to find a common meeting ground. The people should remember that *they* have elected their Superintendent of schools. His services may be thought of somewhat as we think of the services of our physician and health officers. These we look upon as trained specialists and if there is anything the matter with us we do not think of such a thing as taking matters into our own hands and doctoring ourselves. We call in our physician and follow his directions and give him a fair chance. Only in extreme cases and after patiently following his counsel and taking his prescriptions do we, if at all, exercise the privilege of recall and turn to another physician. This attitude of mind toward the Superintendent of schools would, we believe, relieve a delicate and dangerous situation in many a town or city. Give the poor Superintendent a chance Mr. Citizen; follow his advice; try his remedies; get his point of view; as long as possible believe that he knows more about his job than you do; and only when everything else has failed and you and the majority of your fellow citizens have become absolutely convinced that he is in error, exercise your privilege of recall. Not even then should you take this extreme measure unless you have been to him kindly and given him the opportunity to fully explain to you his hopes, his motives and his aims.

And, Mr. Superintendent, be patient with your less fortunate constituents. Of course you know more about these things than they do. But the times are not always ripe for the carrying out of what is theoretically the best plan. Go ahead only as far as you can take your public with you. Be tactful and kind.—But, we forbear!

The Brown University Teachers Association is a good model for imitation. Its Seventh Year Book lies before us and contains more than a thousand names of members. These men and women are nearly all teaching in various parts of the world. Their influence upon their fellow men and women is incalculable. They have been trained for intelligent and efficient service and generations yet unborn will become their debtors. The Association is a real and not cumbersome bond to bind them together in a common fellowship of self-improvement and service. The sense of comradeship in a great calling is preserved and promoted. Once a year the Association meets and those who are so situated that they can attend the meeting listen to addresses on several important educational themes by distinguished educators, and participate in discussing these themes. The members "break bread" together and taste the social joys of congenial comradeship. "Education" carries much of the inspiration of these annual meetings to distant members and to the still larger circle of workers represented by its subscribers and readers in various parts of the country. This Association owes its existence and continuance largely to the enthusiasm, wisdom and painstaking faithfulness of Professor Walter Ballou Jacobs of the University, who is Secretary of the Association. We believe that the work that is being accomplished is thoroughly worth while and that it will grow and its field of usefulness will be extended in the future. We congratulate its officers, the University which has given it its being, and the whole educational fraternity on the success and the promise of its achievements.

Foreign Notes

ERRATUM.—In "Education" for April the footnote on page 546 should read: In Monatshefte fü den naturwissenschaftlichen Unterricht, October, 1915.

ENGLAND.—Important experiments have been attempted in the schools of London which are of special interest in the United States: Flexible grading has become a general feature, whereas formerly the system of annual promotions was rigidly carried out, it is now clearly recognized that children should be allowed to progress through the schools at varying rates suited to their individual capacities. In small ungraded schools of the county it is comparatively easy to pass a child forward as rapidly as is desirable; in the larger city schools the problem is more difficult and the promotions necessarily must take place at stated intervals. The year is now usually divided into terms of four or six months, at the end of which the progress made by the class is tested and those who are ready to advance are promoted to the class above.

The experiment of promoting a teacher with the class has been very successfully carried out in several infant schools, that is, schools for children under 7 years of age. In these cases the teacher starts with the pupils at their entrance and continues with them until they are ready to be advanced to the senior department; she then takes a new class of beginners. It is stated that young children who are at all shy or nervous seem to advance much better under this method than by any other. In the senior departments generally, a teacher remains in one grade, but this system is modified by the designation of certain teachers to specialize in particular subjects. The teacher assigned for this work still has charge of her own class, but teaches her special subject in all the classes of the school, her place in her own room being taken during her absence by the teacher of the class in which she is temporarily engaged. This procedure, which is termed in American schools departmental teaching, is viewed with more and more favor by the London authorities.

EXCHANGE OF TEACHERS.—As a consequence of the war, the exchange of teachers between England and the continent has ceased. The agreement between the English authority and the Prussian minister of education necessarily lapsed. In the case of France formal notice was given that men assistants could not be supplied for English schools unless they were not required for military service. As all were so required, only French women have been available as assistants in English schools. The place of the French men has been temporarily supplied by Belgian refugee teachers in England.

EXEMPTION OF CHILDREN FROM SCHOOL ATTENDANCE.—The English education law provides for the exemption of children from school attendance who are needed in agricultural labor, but only under strict regulations. On account of the demands growing out of the war, the need for the services of the children has increased; the Government, however, keeps close watch on this matter in order to prevent abuses of the privilege. The latest inquiry relative to the subject shows that on January 31, 1916, the total number of children excused from school attendance for agricultural employment was 7934 boys and 92 girls. Of these 143 boys and 1 girl were under 12 years of age, 4280 boys and 13 girls between 12 and 13, and 3511 boys and 78 girls between 13 and 14 years.

IRELAND.—According to an address recently delivered by the Vice-Chancellor of the Senate of Dublin University: The Trinity Medical School has sent 650 men, past and present students, to the navy, the R. A. M. C., the military hospitals, and the fighting units. Of these, 24 have fallen, 26 have been wounded, and 10 taken prisoners; 28 have meen mentioned in despatches, 5 have received Military Cross, 3 the Companionship of the Bath, 3 the Distinguished Service Order, 2 the Order of St. Michael and St. George, and 1 the Cross of the Legion of Honor.

A GERMAN CITY.—Hamburg, with a population of about 980,000, is the second city in size in Germany. The system of continuation schools in this city is nominally a voluntary system, but while the local authority does not enforce attendance, the trade guilds do this very effectively, so that for apprentices engaged in trades regulated by a guild, compulsion has become very real. The guilds control the details respecting the hours and times for holding the classes. The arrangements for apprentice plumbers are as follows:—All apprentices, Sunday morning, 8 to 12; first year apprentices, Monday, 3 to 7 P. M.; second year apprentices, Tuesday, 3 to 7 P. M.; third year apprentices, Thursday, 3 to 7 P. M.; fourth year apprentices, Friday, 3 to 7 P. M.

It is estimated that of 18,000 young persons, 11,500 are engaged in skilled occupations. Of this number under the voluntary system, 95 per cent attend continuation classes.

The original aim of these schools was to supply theoretical rather than practical instruction, but it has not been found possible to maintain a successful work in this way and in several cases the guilds have taken steps for the establishment of workshops.

A. T. S.

Book Notices

STORIES OF THRIFT FOR YOUNG AMERICANS. By MYRON T. Pritchard and Grace A. Turkinton. Charles Scribner's Sons.

If thrift is, as one of our richest men, who is quoted in the preface of this volume has said, "the foundation of success in business, of contentment in the home, of standing in society," then surely a volume like this one is needed and will be distinctly useful. Thrift is much more than the mere saving of money. It is a careful and orderly habit of mind. It is a highway of efficiency since the thrifty boy or girl or man or woman does things in a way to get the largest results with the least expenditure of effort. It is a virtue that should be cultivated by everyone and therefore it should be taught in our public schools. It is distinctly and closely related to good citizenship.

The authors of this volume are skilled artisans in the great work of teaching. The very first sentence in this book shows the masterly hand of one who has learned that the child loves the concrete. He does not like to be preached to or "at." He loves a story, and another child. Therefore his interest will be caught instantly when he opens this book and reads, "I think Emma Jones is just as stingy as she can be." This makes the young reader want to hear more. This is on his plane. He knows "Emma Jones" (though she was not "stingy", after all) and he has known lots of boys and girls who *were* "stingy," and he has been so himself sometimes. He will not rest until he sees how it comes out. And so he will be led on and on through the book, until he has been taught ever so many big truths, without knowing that he has been learning; such lessons as what thrift is, wise spending, the way to use spare time, the cost of carelessness and neglect, the consequences of leaving school, how to use the savings bank, how to keep accounts, owning a home, etc. We can think of no better present for a child than a book like this. The teacher can use it for the good of the class in occasional afternoon talks and it will make an unsurpassed supplementary reader.

COMPARATIVE FREE GOVERNMENT. By Jesse Macy, Professor Emeritus of Political Science in Grinnell College and John W. Gannaway, Professor of Political Science in Grinnell College. The Macmillan Co. Price $2.25.

This volume is based upon the world movement toward democracy, which impels the historian to seek the solution of many problems through a comparative study of government. "World experience with free institutions" can now be drawn upon. This kind of investigation is particularly necessary to students who are specializing in political science. Such students will gratefully avail themselves of the scholarly and comprehensive survey of world progress which is here presented.

FRENCH VERB FORMS. A handbook for students. By Eunice Morgan Schenck, Ph. D. D. C. Heath & Co. Price 20 cents.

A small, paper-covered, comprehensive, clear and valuable presentation of a difficult stage in the acquisition of the French language. Teachers and students will be equally grateful for the aid given.

A MEASURING SCALE FOR ABILITY IN SPELLING. By Leonard P. Ayers, Division of Education. Russell Sage Foundation, New York. Price 30 cents.

The words reproduced on this scale are the 1000 commonest words in English writing. Figures at the top of the scale are derived from 1,400,000 spellings of these words by 70,000 children in 84 cities. With this scale in hand any superintendent, teacher or school committee can determine whether a give grade or a given school is at. above, or below the average point of efficiency in this branch of the curriculum.

HANDWORK AS AN EDUCATIONAL MEDIUM. By Philip Boswood Ballard. The Macmillan Co. Price, $1.00.

One of the most thorough treatments we have seen of the underlying principles which have brought forward and made so popular the handicraft movement in the schools.

A "DAY" OF CREATION, or Questions About the Creation and Some Attempts to Answer Them. London: King & Jarrett, Ltd.

This is a catechism reminding us of an old-time and happily, a discarded method of education. We fail to see the use of a book like this in these days.

HEROES OF THE NATIONS. By Herman S. Alshouse, Principal and Teacher of History, Public High School, Saxton, Pa. With illustrations by Bert Valentine. The Macmillan Company. Price 40 cents.

The story of Joseph, of Ulysses, of William Tell, Haroun al Raschid, Columbus,—these names are sufficient to indicate the scope of this little volume in the "Everychild's" series.

HEALTH WORK IN THE PUBLIC SCHOOLS. Leonard P. Ayres and May Ayres. The Survey Committee of the Cleveland Foundation, Cleveland, Ohio.

Illustrates what may be and should be done for the health of the children in the public schools, in any town or city.

FARM-BUSINESS ARITHMETIC. By Curtis J. Lewis, B. A. D. C. Heath & Company.

Useful as a text-book in agricultural courses and practical for any farmer or farmer's boy who is to follow farming for his life work. The careful study of its pages will make for thrift and efficiency.

EARLY ENGLISH HERO TALES. Told by Jeannette Marks. Illustrated. Harper & Brothers.

The first of a series of "Master Stories" of English Literature for young readers. It offers stories chosen from the earliest literature, of the seventh to the fourteenth centuries. They are interesting and not otherwise easily accessible.

BOYS' CLUBS. By Charles S. Bernheimer, Ph. D., former assistant head worker, University Settlement, New York Superintendent, Hebrew Educational Society, Brooklyn. and Jacob M. Cohen, A. B., LL. B., Club Director, Recreation Centre 20, New York. The Baker & Taylor Company.

Whoever is interested in boys and their problems will find in this compact and readable volume an excellent account of the "gang" instinct and its civilized manifestations in boy's clubs, camps, and other associations. Club membership, management, finances. and all related topics are ably treated. There is a chapter also on Girls' Clubs.

CHILD ACCOUNTING IN THE PUBLIC SCHOOLS. Leonard P. Ayres. The Survey Committee of the Cleveland Foundation, Cleveland, Ohio.

A yearly school census has many uses. This is an account of one of the most thorough ennumerations, made by experts, with many valuable results to the country, the city and the children themselves. It will well pay any superintendent for the perusal.

SELECT POEMS OF ROBERT BROWNING, edited with notes and an introduction. By Percival Chubb, formerly director of English, Ethical Culture Schools, New York City. Longman's Green & Co. Price 25 cents.

A worthy addition to an excellent series of English texts.

Periodical Notes

In **The Countryside Magazine** for April there is an alluring article for the "Commuter" entitled "Bee-Keeping for the Amateur," by John W. Love. Look out, gentle reader, that you do not get "stung."

In celebration of the Shakespearean Centenary, **The North American Review** offers a notable paper by Sir Arthur Quiller-Couch on the workmanship of the dramatist's later plays.

Two articles in the opening **St. Nicholas** series on "The Love for Out-Door Life" appear,—the first, "Uncle Sam's Camping and Recreation Grounds," by Day Allen Willey, showing what the government does to assist and encourage campers in the national reservation, the other, "How to Foretell Weather," by Adelia B. Beard, containing instructions on a matter of the highest importance to all campers.

Two stories of unusual distinction appear in the April number of **The Atlantic Monthly.** With simple realism 'Little Brother,' a Belgian episode, by Madeleine Z. Doty, gives the story of the heroism of a little Flemish boy confronted by the terrible realities of birth and death and war. The poignancy of this tale is heightened by the fact that it is based on actual happenings.

"Great Britain's Bread Upon the Waters, Canada and Her Other Daughters," is the title of an appreciative article in **The National Geographic Magazine,** for March, by ex-President William Howard Taft. The topic, "Religious Education in the Home," is suggestively treated by several authors in **Religious Education** for April. "National Defence Development" is fully presented in a series of articles by writers of repute in **The Scientific Monthly** for April.